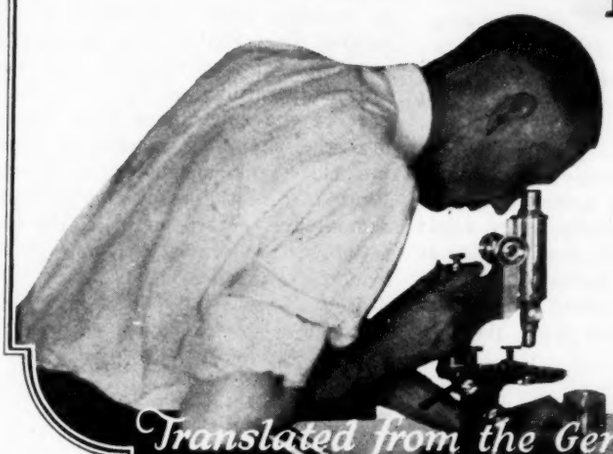
Volume 83
Number 4

IRON TRADE REVIEW

Cleveland, O.
July 26, 1928

Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

Translated from the German by Richard Rimbach

Chap. III—Steel (Continued)

IN COMPARISON to the wrought iron, steel always shows the segregated zone; on the other hand, the marked parallel slag inclusions of the latter do not appear. The etching or a sulphur print thus immediately indicates whether the material is steel or wrought iron, as for example, compare Fig. 12 with Fig. 5. By these methods one also can recognize what form changes the material has passed through, which very often is important in clearing up the process of manufacture of the material. Fig. 21 shows the sulphur print of a steel boiler tube which was first rolled into a strip with standup ribs, then bent to the shape of a tube and lap welded at the seam indicated by the arrows. It will be noted that the seam is directly opposite the most pronounced seggregated zone. Sometimes it is possible to draw conclusions from the appearance of the structure of the fracture, but such a conclusion is not absolutely reliable, as much depends upon how the fracture took place.[4] The estimate of the material on the basis of fracture structure may easily lead to erroneous conclusions. If we are dealing with steel or wrought iron, such doubts occur quite frequently even with the specialist, as has been shown by the numerous questions sent to the material testing laboratories. As to how serious may be these errors in the quality of the material as judged from the fracture are shown by Figs. 19 and 20 from photographs by E. Heyn. This is a wheel tire whose fractured surface in the neighborhood of

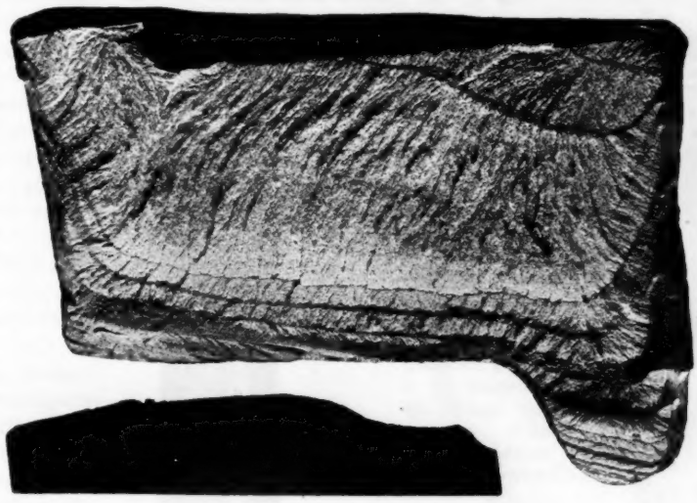


Fig. 19 (Above)—Fracture surface of a railroad tire. Fig. 20 (Below)—A part of the same tire in cross section, etched macroscopically. (E. Heyn)

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Construction and Enterprise

(*Concluded from Page* 186)

B. McQueeton, Wilbert G. Welby, Helen Archibald and others.

OAKVILLE, ONT.—Bulk tenders are being received until July 16, by E. Bamber, Kerr street, for the erection of a plant here for General Metal Devices Ltd. Building to be 1-story, 60 x 300 feet, concrete block and steel construction. Architect, R. Card, 142 Chester avenue, Toronto.

OWEN SOUND, ONT.—Brigham & Woolrich, 201 Fifth avenue west have been awarded contract for addition to the plant of the Empire Stove & Furnace Co., Third avenue. Building to be 1-story, 50 x 100 feet, steel and concrete construction.

ST. THOMAS, ONT.—Erie Iron Works Ltd., has been reorganized with W. T. Greatrox, Toronto, as president. The plant will be renovated and some additions are contemplated.

TORONTO, ONT.—Canadian General Electric Co. Ltd. is building additions to its plants in Toronto and Peterboro, Ont.

TORONTO, ONT.—Dominion Bridge Co. will erect a new shop adjoining its present premises on Sorauren avenue for the fabrication of a heavier type of structural steel.

TORONTO, ONT.—Fairbank Engineering Co. Ltd. has been incorporated to carry on the business as mechanical engineer, founder, and machinery manufacturer with $40,000 capital by Earnest G. Joy, Vera Mercer and Jean Haire.

TORONTO, ONT.—Imperial Oil Co., King and Church streets, has secured a site on Ninth avenue, and proposes to build a garage, office building, warehouse, boiler house, barrel washing plant, light products pumphouse, etc.

TORONTO, ONT.—Wilde & Brydon Ltd. has been incorporated to manufacture and deal in tools, implements and machinery, and to carry on the business as engineer, with $100,000 capital by Joseph Wilde, Noel M. Brydon, Sydney E. Webb, and others.

TORONTO, ONT.—Bull Dog Electric Products of Canada Ltd. has been incorporated to carry on the business of electrician, mechanical engineer, and manufacturer of engines, dynamos, generators, etc., with 100,000 shares no par value by Robert Wherry, William Zimmerman, and Robert K. Logan.

TORONTO, ONT.—Addressograph Co. Ltd. has been incorporated to manufacture and deal in printing machines, and other office appliances with a capital stock of $100,000 and 20,000 shares no par value stock, by Harold W. A. Foster, Reginald D. Williams and Bertha G. Clements.

TORONTO, ONT.—Link-Belt Ltd., 791 Eastern avenue, will shortly be in the market for one 10-ton, one 5-ton and one 3-ton bridge cranes, machinery, tools and complete equipment for machine shop to be erected adjoining its plant here, for which bids for construction were called about July 16.

TORONTO, ONT.—Bids will be called at an early date for the erection of a manufacturing plant on Coxwell avenue, for Service Station Equipment Co. Ltd., 510 King street east, manufacturer of gasoline pumps, etc. Proposed building to be 1 story, 122 x 340 feet, steel and brick construction. Architect care of owners.

WESTON, ONT.—Arco Co. Ltd., 16 Liberty street, Toronto, Ont., has appointed Chapman & Oxley, Northern Ontario building, Toronto, to prepare plans for a factory here.

WINDSOR, ONT.—Desoto Motor Corp. of Canada Ltd. has been incorporated to manufacture automobiles, tractors, trucks, farm implements, etc., with $10,000 capital by John D. Mansfield, Joseph E. Fields, and William L. Mitchell.

BRYSON, QUE.—Ottawa Power Co., 86 Wellington street, Ottawa, Ont., is preparing plans for the installation of a 25,000-horsepower electric unit here.

LACHINE, QUE.—Dominion Welding Engineering Co. Ltd. has been incorporated to carry on the business as welding engineer and welding contractor, with $50,000 capital and 1000 shares no par value stock, by Francis G. Bush, Herbert W. Jackson, William P. Creagh and others.

MONTREAL, QUE.—Jaffe Co. Ltd., 634 Clarke street, will build a factory on Waverley street, 3-story, steel and reinforced concrete.

MONTREAL, QUE.—Robert Mitchell Co. Ltd. has leased a foundry near its plant to allow for expansion of its business, and it is increasing its working force.

MONTREAL, QUE.—Pagano Construction Co. Ltd. has been incorporated to carry on the business of a general construction company with $100,000 capital by Auguste Mathieu, Edward M. Macdonald, George Noel and others.

MONTREAL, QUE.—Church Ross Co., Ltd., 901 Keefer building, has been awarded contract for the erection of an addition to the plant of the American Can Co., 2065 Jeanne d'Arc street. Building to be 3-story, 120 x 200 feet, reinforced concrete construction.

MONTREAL, QUE.—Universal Automatic Burners Ltd. has been incorporated to manufacture and deal in furnaces, stoves, boilers, heaters, etc., with $50,000 capital by Edward S. McDougall, Kenneth Archibald, Winchester N. Biggar, and others.

MONTREAL, QUE.—Eureka Steam Carburetor Co. Ltd. has been incorporated to manufacture and deal in automobiles, airplanes, motor boats, etc., with $10,000 capital and 3000 shares no par value stock by Leslie E. Davignon, Ruth Merrick, and Elsie Crozier.

MONTREAL, QUE.—Furnace Engineering Co. of Canada Ltd. has been incorporated to carry on the business of electrical, mechanical, hydraulic and civil engineer with $10,000 capital by Alexandre-Papineau Mathieu, Arnold Mathieu and Emma O'Hara.

ST. MAURICE RIVER, QUE.—Contracts will be awarded within the next two or three weeks for the construction of dams on the St. Maurice river, at points where rights were recently acquired by the Shawinigan Water & Power Co., 610 Power building, Montreal, Que. Power to be developed on the river, according to present plans, will be upward of 600,000 horsepower.

ST. PIERRE LES BECQUETS, QUE.—La Cie d'Enterprise Publiques Ltd., 72 Mountain Hill, Quebec, Que., are having plans prepared by C. Camille Lessard, 72 Mountain Hill, Quebec, for rebuilding of waterworks plant, system and concrete reservoir here.

BIENFAIT, SASK.—Western Dominion Collieries Ltd., 305 Trust & Loan building, Winnipeg, Man., will build a briquetting plant here.

REGINA, SASK.—Churchill River Power Co. Ltd. has been incorporated with 50,000 shares no par value stock, by George M. Huycke, Norman E. Strictland, Robert G. Ferguson, and others.

REGINA, SASK.—General Motors of Canada Ltd., head office, Oshawa, Ont., has awarded contract to Smith Bros. & Wilson Ltd., Eighth avenue and Ottawa street, Regina, for the erection of assembling plant here. Architects Hutton & Souter, 6 James street south, Hamilton, Ont.

SASKATOON, SASK.—Town council proposes to build addition to local power plant.

New Trade Publications

CASE HARDENING BOXES—Case Hardening Service Co., Cleveland, has issued a bulletin on its case hardening boxes of a heat-resisting alloy, designed for long service and low cost. Advantages of the boxes made from this alloy are illustrated.

TRANSMISSIONS—Reeves Pulley Co., Columbus, Ind., has issued a leaflet illustrating its variable speed transmission to give any speed for any machine, with adjustment for any variation within the range. The transmission and its parts are fully illustrated.

CONVEYORS—Mathews Conveyer Co., Ellwood City, Pa., suggests in a current bulletin that the use of conveyors will move material steadily and avoid congestion in various spots. By this means more space is obtained for useful operations. Illustrations show how this result may be attained.

BEARINGS—Wagner Electric Corp., St. Louis, in a current bulletin describes and illustrates the construction of its sleeve and ball bearings. Drawings and halftones show construction and the text calls attention to salient points.

WELDED PIPE—Linde Air Products Co., New York, has issued another number of its library, devoted to industrial piping. It covers the subject of construction, repair and maintenance of welded pipe systems. It is well illustrated.

COMBINATION PUNCH—Buffalo Forge Co., Buffalo, announces in a current bulletin an all-steel universal combination punch, slitting shear and bar-cutter. Illustrations show various types of the machines and extent of work possible to be done on them.

ROTARY CUTTERS—Tindel & Phillips, 516 Commerce street, Philadelphia, manufacturers of rotary cutters, surfacers and similar tools, have issued a card suggesting use of their appliances for metalworking. A new method of fastening blades in milling or rotary cutters is shown. Tables of size and capacity are given.

NICKEL CAST IRON—International Nickel Co., New York, has issued the fourth of its series of bulletins on the general subject of insuring dependable properties in gray iron castings by the use of nickel as an alloy. It has for its subject increased hardness. Microphotographs illustrate the text.

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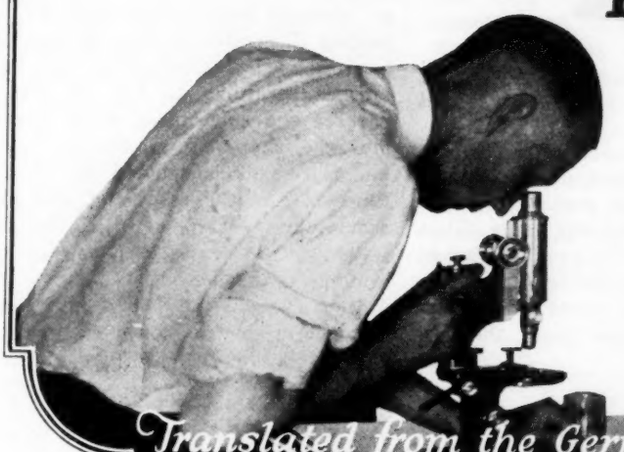

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IN COMPARISON to the wrought iron, steel always shows the segregated zone; on the other hand, the marked parallel slag inclusions of the latter do not appear. The etching or a sulphur print thus immediately indicates whether the material is steel or wrought iron, as for example, compare Fig. 12 with Fig. 5. By these methods one also can recognize what form changes the material has passed through, which very often is important in clearing up the process of manufacture of the material. Fig. 21 shows the sulphur print of a steel boiler tube which was first rolled into a strip with standup ribs, then bent to the shape of a tube and lap welded at the seam indicated by the arrows. It will be noted that the seam is directly opposite the most pronounced segregated zone. Sometimes it is possible to draw conclusions from the appearance of the structure of the fracture, but such a conclusion is not absolutely reliable, as much depends upon how the fracture took place.[4] The estimate of the material on the basis of fracture structure may easily lead to erroneous conclusions. If we are dealing with steel or wrought iron, such doubts occur quite frequently even with the specialist, as has been shown by the numerous questions sent to the material testing laboratories. As to how serious may be these errors in the quality of the material as judged from the fracture are shown by Figs. 19 and 20 from photographs by E. Heyn. This is a wheel tire whose fractured surface in the neighborhood of

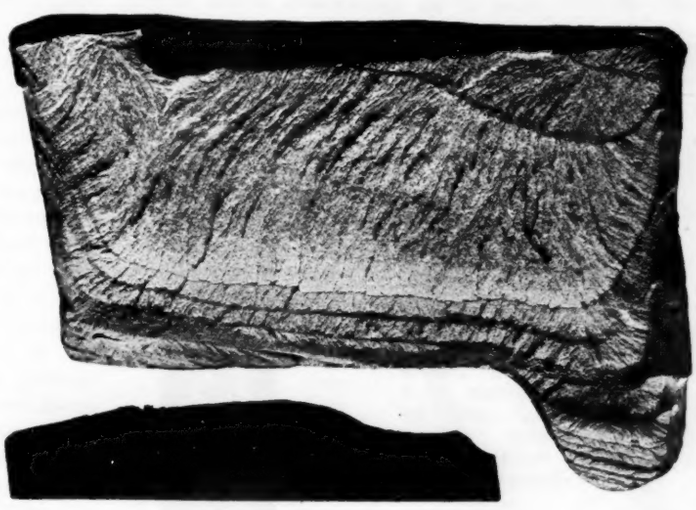

Fig. 19 (Above)—Fracture surface of a railroad tire. Fig. 20 (Below)—A part of the same tire in cross section, etched macroscopically. (E. Heyn)

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Fig. 21 (Left)—Sulphur print of the cross section of a steel boiler tube with sulphur segregation. (M. von Schwarz). Fig. 22 (Right)—Open-hearth steel screw with considerable segregation

the wearing surface clearly indicates several parallel layers, Fig. 19. On the basis of this singular fracture appearance, one would be inclined to conclude that the material is not uniform, and has several zones of different kinds. That this is not the case is shown in Fig. 20 by the etched cross section, which is taken perpendicular to the direction of the layers, and which shows a wholly uniform structure.[5] The layer structure of the unetched fracture, therefore, is not due to ununiform material but to the singularity of the fracture.

Construction parts of brittle steel, as is known, are very susceptible to impact. For this reason railroad rails with excessive segregation, as shown in Fig. 17, are rejected, for with the impact-type stress exerted by the locomotive and car wheels, these rails constitute a serious operating danger as has been proved by the many investigations into the causes of rail fractures. The brittleness of material with sharp and sudden cross sectional changes is especially noticeable. When there are not sufficiently large fillets in the grooves for the gradual change from a heavy to a lighter cross section, the stress is about nine times as large as indicated from theoretical calculations. Such a stress increase is dangerous in brittle material as represented by the core zone with excessive segregation. This holds for screws, which are machined from solid bars in which only the strongly segregated and resulting very brittle core remains for the shank, as is shown with the longitudinal section of an open-hearth screw in Fig. 22. As the sharp threads acting as notches increase the danger, such screws have little resistance; for this reason they must be made of material free from segregation.

Frequently, therefore, the rod is upset to form the screw head so that the thread is in lower phosphorus and sulphur material and therefore tougher. At the same time, economic reasons also make for upsetting of the head. With the cold upsetting of the heads, the proper procedure must be followed so that the fibers of the material are not sheared off.[6] With heads made in one operation no danger is present in most cases; the danger is only in the case where the heads are made in two operations and no material feed is provided. In the method illustrated in Fig. 23 with the head shaped preliminarily and then finished according to Fig. 24 with a part of the superfluous stock pushed into the shank, the material forced into the shank is denoted by the distance *h*. As the results of this procedure, the outer fibers of the material at the transition zone of the head to shank are sheared off. The defective heads of bolts turned out by such a double pressing operation can be knocked off easily, for in addition to the shearing off of the outer fibers, the segregated core zone comes directly in the dangerous change in cross section from shank to head. From a sulphur print or a macroscopic etching of the longitudinal section, for example Fig. 25, one can recognize the disturbed course of the fibers with such improperly produced heads.

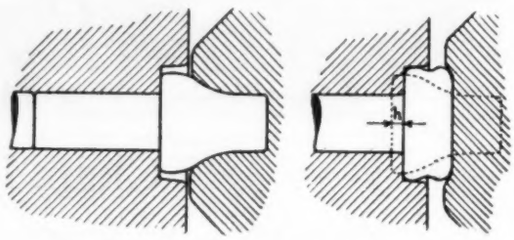
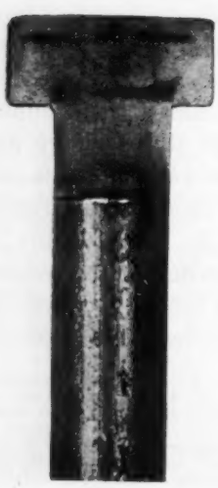


Fig. 23 (Left) and Fig. 24 (Right)—The double upset process for heads with feed. The product is defective. (P. Mellmann)

In the Nussbaum process the shank of the preliminarily worked bolt is fed forward the amount *h* in Fig. 24 before the second upsetting, so that new stock is brought into the endangered cross section. The macroscopic etching in Fig. 26 shows that here the fibers of the stock are only bent and not sheared off. At the edge the tough material remains. This is shown especially clear in Fig. 29 in the sulphur print of the longitudinal section of the properly upset steel screw head.

To illustrate the high brittleness of strongly segregated steel, several examples are taken from practice. The 45 millimeter crankshaft of an ag-

[5]W. Schwinning explains singular appearance in "Zaehigkeit und Brucherscheinungen," Deutscher Verband fuer die Materialpruefungen der Technik, No. 75.



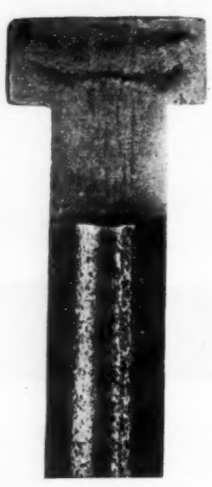


Fig. 25 (Left)—Etched longitudinal section of a head which was improperly upset according to the old double-pressure method. Fig. 26 (Right)—Macroscopically etched longitudinal section of a head properly upset by the Nussbaum double-pressure method. (P. Mellmann)

[6]See M. von Schwartz. Werkstattechnik, Vol. 18, No. 14, 1924; and P. Mellmann: Ebenda Vol. 20, No. 14, 1926.

ricultural machine was scratched in manufacture and at first remained unnoticed. After that the crankshaft which weighed about 6½ pounds fell to the ground from a height of about 3 feet and broke into pieces. The reason for the excessive brittleness can immediately be recognized from the etching of the cross section, Fig. 28, which shows a very considerable and again approximately rectangular segregation. Another example of this is given by a tube which received a number of scratches on the inner side in drawing from the roughly rolled ingot which ran in planes perpendicular to the longitudinal axis.[1] On the somewhat enlarged cross section shown in Fig. 27, one distinctly recognizes on the inner side the dark heavily

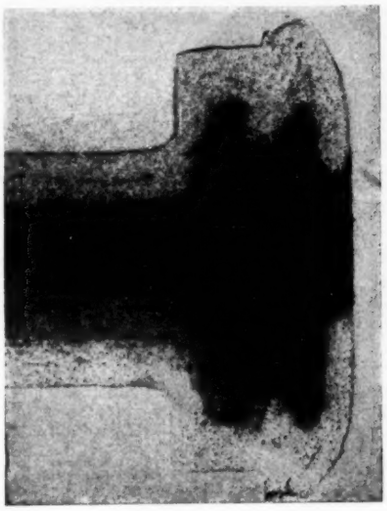


Fig. 29—Sulphur print of a properly upset steel screw head shows from the segregation that it was upset by the Nussbaum double-pressure method with feed. (M. von Schwarz)

segregated core zone of the original ingot, and on the outside the surrounding low phosphorus light edge zone. The brittle core zone, therefore, at least played a considerable part in the tear formation, as outside of excessive segregation other reasons may enter into consideration for the brittleness, as for example improper heating, cold working, etc. The recrystallization on annealing below the transformation temperature after critical cold working, which caused local coarse crystal structure and very high brittleness, will be taken up in more detail later.

This tube may have been produced by the Ehrhardt process from a square ingot, as can be recognized from the irregular width of the segregation zone. With seamless tubes produced by the Mannesmann process, which usually are made from a round

[1]E. Heyn and O. Bauer, *Stahl und Eisen*, Vol. 32, page 402. 1912.

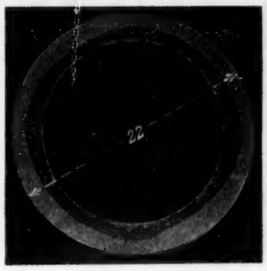


Fig. 27 (Left)—Drawn steel tube manufactured by the Ehrhardt process, cross section etched macroscopically. (E. Heyn and O. Bauer). Fig. 28 (Right) — Steel round with pronounced segregation in the cross section, etched macroscopically

ingot, the segregation also makes up the inner edge of the tube, but is generally of uniform width or takes up a somewhat excentric position, if the segregation was excentric in the ingot, Fig. 30. The tube cross sections *A*, *B*, *C* and *D* show sulphur prints of Mannesmann tubes with different amounts of segregation. *E* is practically free of segregation and *F* shows a very high but uniformly distributed sulphur content. In the welded steel tubes the segregation zone lies in the center of the tube wall, see Fig. 21, and opposite the weld, if the tube, as is generally the case, is bent and welded from a strip. The metallographic investigation will usually indicate with certainty how the tube was produced.

Spontaneous Heating of Coal Investigated

The bureau of mines, Washington, has issued technical paper 409, a 67-page pamphlet dealing with the spontaneous heating of coal. This paper has as its purpose the assembling and correlating of results of fundamental investigations of the various factors that influence spontaneous heating of coal. A critical review, stressing the more recent laboratory studies on spontaneous combustion is included. The pamphlet contains theories on the spontaneous heating of coal, changes in coal on weathering, methods for determining oxidizing tendencies of coals and factors affecting spontaneous heating of coal.

Employes Study Safety

Safety education of employes of the Bethlehem Steel Corp. helped to reduce lost time accidents at Bethlehem plants 54 per cent in the last ten years. This improvement was announced in connection with the company's fourteenth annual First Aid and Mine Rescue meet held recently at Sparrows Point, Md. More than 8000 employes have received an intensive course of instruction in this work during the last 12 years. Marked improvement in accident prevention was effected by the employes during the first quarter of 1928. Bethlehem as a whole improved its best previous record by 17.8 per cent. The steel plants alone bettered their safety record by 44 per cent.

Thompson Products Co., Cleveland, has booked a contract from the Pratt & Whitney Co., Hartford, Conn., for a year's requirements of the latter for airplane engine valves.

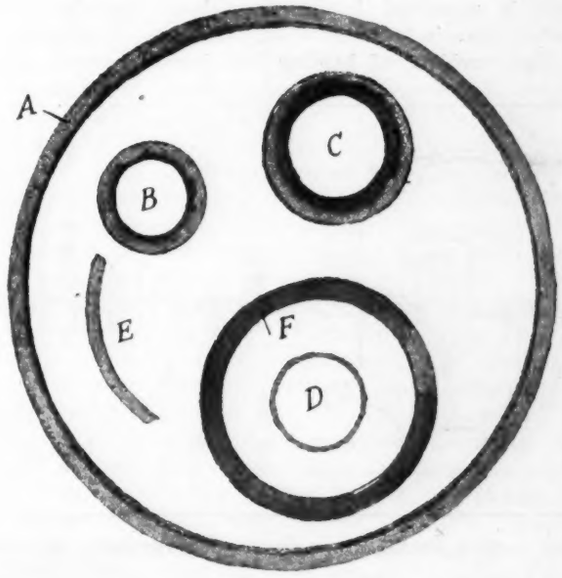


Fig. 30—Sulphur prints of drawn seamless steel tubes manufactured by the Mannesmann process. A, B, C and D show varying amounts of segregation. E is practically free from segregation, while F shows high but uniformly distributed sulphur

High-Frequency Coils Between Stands Increase Range of Rolling

Means Provided for Continuous Heating Makes Possible the Use of the Cross-Country Mill for Sheet and Strip Production

By Leon Cammen

TO ALL practical purposes, sheet and strip rolling is completely controlled by the factor of temperature. Hot rolling continues as far as the rate of cooling of the piece permits. When the steel gets too cold, it is reheated. In continuous rolling where reheating has been impractical hitherto, reduction is discontinued at about 16 gage. In common sheet mill practice, when the piece gets too thin it is doubled or two or more sheets arranged in a pack are passed between the rolls simultaneously. In cold rolling the metal hardens after a few passes, and must be annealed, an operation which necessitates an interruption of the process of rolling, and involves additional handling and expense. It is estimated that more than half of the labor cost in sheet and strip rolling is due, directly or indirectly, to the necessity of maintaining in the metal a proper temperature in the region of rolling beyond that where this temperature is present as a result of the initial heating.

If heat is supplied to the metal as it travels between the passes of a continuous hot sheet mill or a cross-country hot mill, the entire problem of rolling is simplified. Many members of the hot mill crew merely serve as observers to see that everything goes right; and the output of the mill is measured in tons per hour rather than in tons per week.

This problem of heating has been solved for wire long ago by the introduction of the ingenious process known as patenting, and theoretically there is no reason why a furnace of a similar type should not work with sheets. The only difficulty is that the length of the "sheet patenting" furnace would have to be as much longer than the patenting furnace for wire as the sheet is heavier and wider. Such a furnace ½-mile long might make sheets, but it is doubtful if it would make money for the mill.

Another solution, proposed by John Shepherdson, Worcester, Mass., is to heat the sheet electrically, either by the resistance method or by making the sheet a part of the low-voltage secondary of a transformer circuit. This method requires the proper handling and delivering to the sheet in a short time of a large current amperage without creating arcs and thus ruining the surface of the sheet and incidentally the electrical control apparatus.

Heating Currents Produced

In a process recently developed use is made of a phenomenon. When an alternating current flows through a conductor, secondary currents known as eddy or Foucault currents are established in those parts of outside conductors, which are magnetically interlinked with the original alternating or pulsating flux. These secondary currents produce heating in the conductors through which they flow, which is the reason why laminated construction is so extensively used in dynamo and electric transformer design. Useful work, however, is being found for these currents, which in the past were considered in the light of a nuisance only.

The use of high frequencies is familiarly illustrated in the Ajax-Northrup induction furnace, but both the generation and use of currents of such frequencies would be difficult in large quantities and under the usual mill conditions, at least in the present state of high-frequency engineering. In sheet rolling the frequency has been limited to the order of 500 cycles which is several times the commercial frequencies now used, and yet not so high as to make the design of generators difficult or their cost materially above the 60-cycle 2 and 3-phase generators.

In tests with somewhat makeshift equipment an efficiency of energy transfer of 23 per cent has been obtained, but the engineering department of one of the largest electric manufacturing companies in this country has stated that with suitable coils an efficiency of energy transfer of 34 per cent may be counted upon.

Fig. 1 shows one element of a cross-country mill for sheet rolling. Sheets are not rolled today on a cross-country mill, but the new method of reheating between passes makes

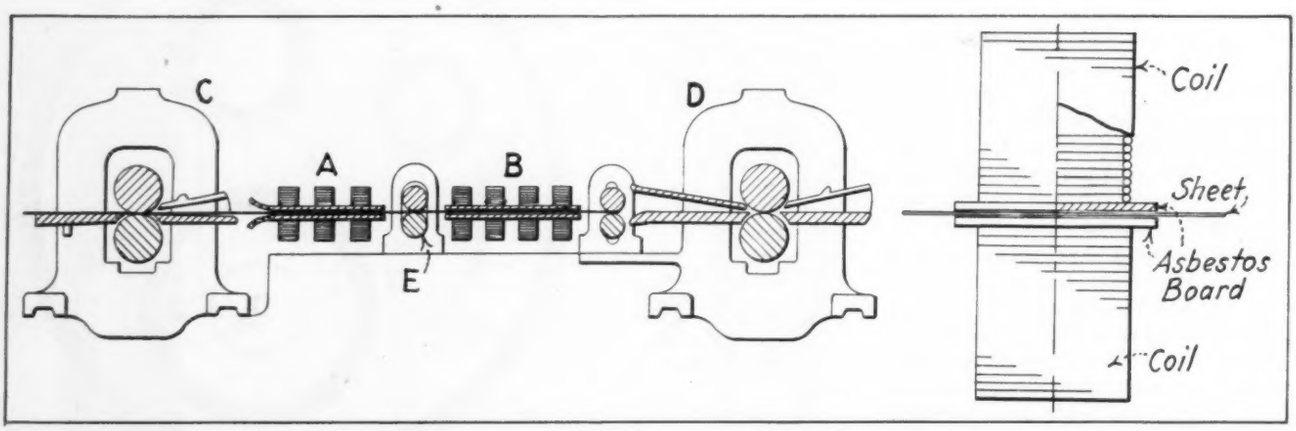


FIG. 1—TWO STANDS OF A CROSS-COUNTRY MILL EQUIPPED WITH HIGH-FREQUENCY COILS FOR REHEATING SHEET STEEL OR WIDE STRIP STEEL BETWEEN PASSES

this a logical proceeding. The sheet, partly rolled, comes out of the stand *C* at a temperature so low that, in ordinary rolling, it would have to be sent to the reheating furnace. Instead, it is passed through coils *A* and *B* carrying a high-frequency current of sufficient volume to produce heating in the sheet. Heating sheets by high-frequency currents represents for various electrical reasons an application of this type of heating where it can be used at its best efficiency.

The most economical way appears to break down sheet bars on roughing mills now used, partly because this will give an elongated sheet which is more convenient to handle in the cross-country type of mill, and also because present methods of sheet rolling are fairly economical in the rough rolling stage. It is in the finishing stage, with its doubling, pack rolling and frequent reheats that the consumption of labor increases rapidly and the operation becomes so expensive.

Pass Adjusted Only for Wear

The rough rolled sheet is reheated in the same way as is done today, and then is finish rolled in one operation and without further manual handling in the type of cross-country mill shown in Fig. 1. Each stand of rolls, *C*, does not differ from those now used, except that each stand performs only one specific reduction the whole time, and the pass therefore is adjusted only to compensate for wear. As the distance between rolls in a cross-country mill is longer than the length of the piece being rolled, the latter is never in two stands at the some time. It is not necessary, therefore, to have the speeds of the various stands as carefully adjusted as is the case in continuous mills, and the present methods of driving of the usual hot mills are satisfactory.

Depending on the reductions and certain other conditions, the reheating coils may have to be placed every two or three passes, while the metal is still fairly thick, and every pass for the rolling of light gages. The length of the coil is determined by certain electrical formulae. The coil should be capable of carrying a current sufficiently large to heat the metal to the proper temperature under the worst atmospheric and operating conditions.

The design of a mill of this kind brought up a number of mechanical problems which had to be solved. For example, the question of conveying the metal between roll stands. The best efficiency of the mill requires that the rolls in stand *D* should run faster than those in stand *C*. The metal from rolls *C* is delivered to the pinch rolls, *E*, the duty of which is to forward the metal to stand *D*. This means, however, that during part of the time the metal will pass through rolls *E* at the delivery speed of the rolls in stand *C*, and the rest of the time at the speed of the rolls in stand *D*, which is materially higher. If rolls *E* are set for a certain speed, that speed will be wrong.

This problem has been solved by making the drive of rolls *E* of a yielding type. All the conveyor rollers are driven from rolls *C* through a ratchet and pawl arrangement. The peripheral speed is, therefore, the same as rolls *C* as long as these rolls are delivering the sheet to the rolls *E*, and as long as the sheet is traveling between the stands. As soon, however, as the sheet enters the rolls *D* and begins to move at a faster speed, the rolls *E* become free and hence do not interfere with the passage of the sheet.

Another problem, to which a large amount of attention had to be devoted, was that of arranging the guides and supports for the sheet while passing through the coil. This was greatly complicated because any metal used in these guides and supports would be heated intensely by the secondary currents induced by the high-frequency current in the coil, and if not protected, might ultimately melt. The problem was solved by a somewhat complicated system of guards which locates the sheet in proper space relationship to the coil. The guards partly are made of non-conducting materials, and partly water-cooled. This made the water consumption of the new mill somewhat high.

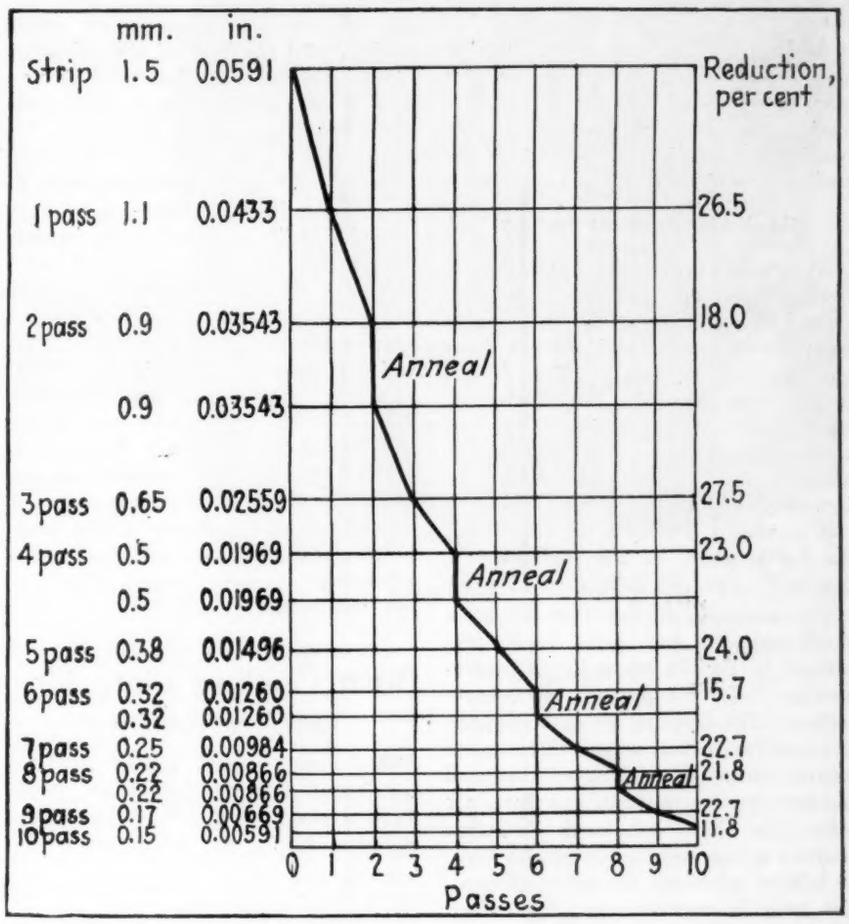


FIG. 2—DIAGRAM OF GERMAN SCHEDULES OF REDUCTIONS AND ANNEALS IN COLD ROLLING STRIP STEEL

The process obviously is well adapted to continuous sheet rolling, both hot and cold, and to continuous cold strip mills making light gages. In cold rolling, steel becomes hard and has to be annealed at intervals. Fig. 2, taken from *Stahl und Eisen*, shows the German practice of strip rolling. The reductions are large, but the metal is annealed every other pass, making four anneals for a reduction which roughly would correspond to our 16 to 36 gage. In American practice a larger number of passes is used, with smaller reductions (say, a gage per pass, after gage 20), but with the same number of anneals for

the same ultimate result. The cost of the usual furnace annealing is high because a large number of operations has to be performed manually for a comparatively modest weight of metal.

This problem becomes comparatively simple with high-frequency electric current annealing. The arrangement is complicated, as the metal has not only to go through the heating coil, as in Fig. 1, but also through a cooling bath. The cost of the anneals is about five times as high as in hot sheet rolling because of the greater range through which the metal has to be heated. The cost of the installation is also much higher because far more complicated machinery for conveying the strip into and out of the heating coils and into and out of the cooling troughs has to be employed.

Applicable to Strip Rolling

The same method is applicable to hot strip rolling, particularly to wide stripsheets. This can be done today down to 12 gage, and with a little coaxing, to 16 gage. The breakdowns then have to be finished in hand mills which means that the cheapest part of rolling is done on the expensive continuous mill. If, however, a high-frequency reheating coil is placed after the 12-gage pass, the temperature of the stripsheet is restored to permit rolling to 22 gage.

The position of the noncontinuous sheet industry has been made precarious in certain ways by the introduction of continuous strip-sheet rolling. The installation of a continuous mill for rolling wide strip requires a large outlay of capital, and its fixed and depreciation charges, therefore, are high. On the other hand, its labor charges per ton are remarkably low, or will be when all the minor difficulties have been definitely eliminated. In the noncontinuous sheet mill the investment per ton of product is comparatively low, as is the output which makes the overhead high. In addition the noncontinuous mill is one of the largest consumers of labor in American steelmaking. The best way by which the noncontinuous sheet mill can meet the competition of the more modern continuous mill is by a reduction in the cost of labor per ton of rolled product. This has been done in part by such inventions as the mechanical doubler, the automatic tinning pot, etc., but apparently not to the degree required by present competitive conditions.

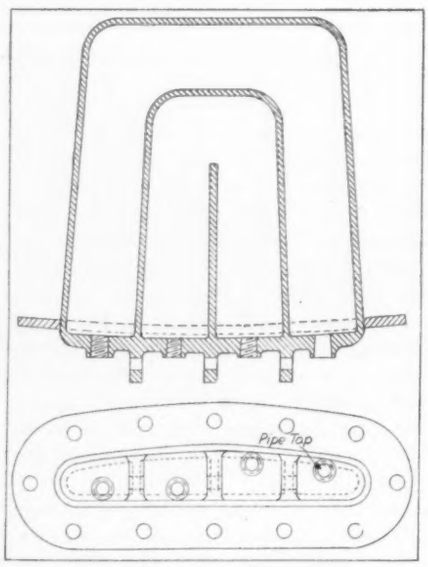
The cross-country mill is capable of a high output, as it will take rough-rolled sheets, within reason, practically as fast as they can be fed to the first stand. From then on the operating labor merely sees that no trouble arises. The heater is the only man who will be kept busy, as it will be up to him to see that the electric coils heat the sheet sufficiently, and yet not enough to raise a scale. Because of this, such a cross-country mill is expected to be capable of taking output of seven to ten sheet roughing mills, with a corresponding cut in finishing mill labor.

In cross-country mill sheet rolling only two furnace reheats are required, of the sheet bar before, and the semifinished sheet after rough rolling. All the rest of the reheating is done in the mill itself by electric means, and involves no manual handling whatsoever. Furthermore, because of the high output of the cross-country mill as a finishing mill, as compared with the roughing mills, it probably will be possible in present mills to run the finishing mill on fewer shifts in the course of a week than the roughing mills. This may mean a rearrangement of the furnaces, but will save money. A further possibility of saving in the costs of production is opened by using a sheet bar of the same thickness as today, but say 24 to 36 inches long. A smaller amount of rough rolling would be given to it, whereupon the partially rolled sheet would go to a shear, and thence to a reheating furnace located ahead of the cross-country mill.

Bosh Cooling Plate Has Duplex Feature

Bosh and mantle plates now being installed in the brickwork of the Benson stack of the Ford Motor Co., Fordson, Mich., are of different construction than the cooling plates inserted in the lining at other plants in this country. In the Scott-type cooling plate the inlet water is directed forward along one side to the nose of the plate and by a series of baffles is made to zig zag from one side to the other until discharged. In the Mathias-type cooling plate the entering water is led directly to the nose of the plate and by a series of baffles is made to circulate downward, then upward and finally downward before being discharged. In the Dovell-type plate baffles direct the water to the nose and thence to the entrance end, thence to the nose and finally to the entrance end where it is discharged.

In the plate designed by the engineering department of the Ford Motor Co. the layout provides a double or duplex arrangement. A partition divides the plate into an inner and outer compartment. The water upon entering the outer compartment flows along one side to the nose thence across to the opposite side and returns to the face of the plate, but instead of being discharged it is piped to the inner compartment. Should a portion of the nose of this particular type plate be melted off while in service, the inlet water connection may be reconnected to the inner compartment, thus maintaining the cooling effect as before and avoiding the total loss of the plate. Whenever it is necessary to flush out the bosh and mantle plate system, pressure water may be maintained on one compartment at the same time that the other compartment is being cleaned. A view of the Ford-type bosh or mantle plate is shown in the accompanying illustration.



BLAST FURNACE BOSH OR MANTLE PLATE OF THE DOUBLE COMPARTMENT TYPE

New York Central Rates Are Reduced

The public service commission of New York has approved new freight rates of the Delaware, Lackawanna & Western railroad on iron and steel articles (manufactured) from Elmira and Elmira Heights to New York Central stations, North Tonawanda to Lewiston, inclusively; Lockport, Cambria, Sanborn and Mapleton, as follows: Carload, 17.5 cents per 100 pounds; less carload, 21.5 cents. These reductions are effective Aug. 4.

The rates on the New York Central on iron pipe from Cohoes, N. Y., to Long Island City has been made 19 cents per 100 pounds on carloads, a reduction of 3.5 cents, and 25 cents on less-carload lots, a reduction of 2 cents. This reduction also becomes effective Aug. 4.

SPECIAL Gas-Fired Furnace Built to Heat Treat Manganese STEEL CASTINGS

By O. W. Andersen

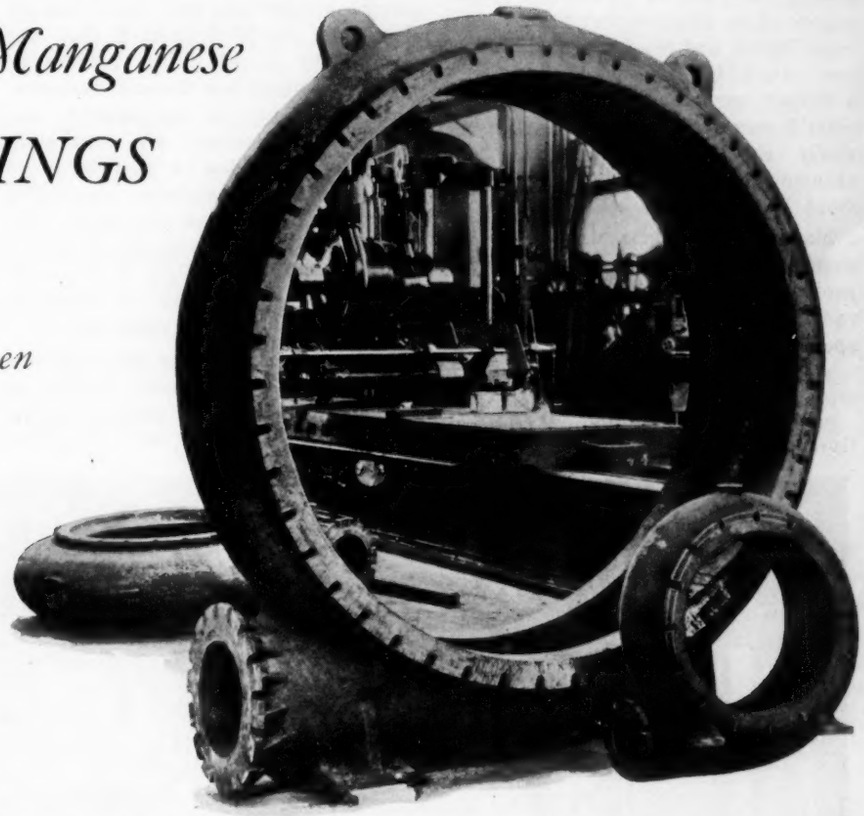


Fig. 1—These centrifugal pump shells are typical manganese steel castings

AS APPLICATIONS of alloy steels are claiming considerable attention at present, it seems appropriate to prepare a brief resume of the early history and some of the modern developments pertaining to the manufacture of manganese steel. While the history of manganese alloys dates back to the 17th century, the discovery of manganese steel must be credited to the perseverance and ingenuity of Robert A. Hadfield of Sheffield, England. Hadfield's untiring efforts revealed a material whose properties were not only astonishing, but of inestimable value. The history of this revolutionary invention should be an inspiration to every inventor. No attempt will be made to go into the details of Hadfield's experiments; it is sufficient to say, that the final product made by him, which was universally known as Hadfield's steel, had the following analysis:

	Per Cent	
Carbon	1.00	1.45
Manganese	10.00	14.50
Silicon	0.30	1.00
Sulphur	0.01	0.03
Phosphorus	0.04	0.10

It will be of interest to know that this steel was first made by mixing molten ferromanganese and bessemer iron in a ladle. With this method, the time for reactions was necessarily short, because the hot metal could not remain in the ladle long, as it became too cold for pouring. It is obvious that castings produced by this method were not equal to the high quality of castings produced today with the modern electric furnace where the ferromanganese is added in the cold furnace and the atmosphere kept in a highly reducing condition.

Adding manganese to steel depresses the transformation range and when sufficient is added, it brings this range below atmospheric temperature. Manganese forms a solid solution with gamma iron and to a certain degree with alpha iron.

In the presence of carbon, most of the manganese forms Mn_3C which contains practically the same percentage of carbon as Fe_3C. At high temperature, these carbides are dissolved in gamma iron and may be retained in solution by rapid cooling. When cooled slowly, these carbides separate and form a relatively thick membrane between the austenitic grains, as shown in Fig. 2, which renders the mass of metal very brittle. It is in this state that manganese steel comes from the molds. These carbides must be put back into solid solution, obtaining the structure as shown in Fig. 3. To do this, the metal is heated to about 1900 degrees

The author, O. W. Andersen, is chief engineer, Pettibone Mulliken Co., Chicago.

Fig. 2—Photomicrograph of manganese steel as cast, showing undissolved carbides

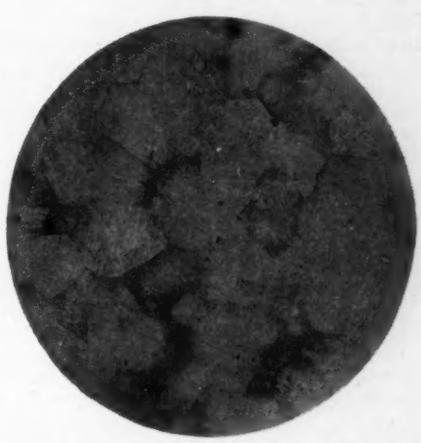


Fig. 3—Structure of manganese steel after heat treatment, showing carbides in solution

Fahr. and quenched in water. This produces a ductile steel.

This metal is readily affected by certain mechanical actions of a hammering or rolling nature. These actions cause slight deformation of the outer layers and develop a hard structure which in extreme cases reaches a brinell hardness of 500. As these outer layers are slowly worn away, the newly exposed surfaces have been automatically hardened by the previous hammering or rolling action.

Manganese steel is unique on account of its peculiar wear resisting properties and is adaptable to a wide range of applications. A few of its specific uses are as follows:

Railroad Work. Frogs, switches, crossings, guard rails, etc.

Mining and Milling Machinery. Gyratory heads, mantles, spiders, concaves, cheek plates, chute plates, mine car wheels, skip car wheels, liners, etc.

Cement and Rock Crushing Machinery. Ball mill liners, rod mill liners, tube mill liners, kominuter liners, roll shells, hammers, rings, breaker plates, screens, etc.

Brick and Clay Machinery. Rolls, augers, brick machine knives, pug mill knives, muller tires and plates, screen plates, etc.

Miscellaneous Machinery. Centrifugal pumps, such as shown in Fig. 1, sand suckers, cutter heads, chain, suction nozzles, pipe elbows, elevator buckets, trench machinery parts, dredge machinery parts, crane wheels, sprockets, gears, pinions, sheaves, etc.

It is an established fact that the success or failure of manganese steel castings depends to a great extent upon the heat treatment they receive. Best results demand that the castings be heated to a temperature close to 1900 degrees Fahr. and then immediately quenched in water. The heat must be uniform in order that excessive strains are not introduced in the steel. It is important that the castings be placed in the furnace at a comparatively low furnace temperature. The rate of temperature rise and soaking period are accurately controlled to follow a predetermined cycle, which is variable depending upon the character of the work. All castings, after being submitted to the proper heating cycle, are quenched in water, the temperature of which is maintained practically constant.

Improper manipulation may result in local oxidation, excessive scaling or even variations in the analysis of the steel by reason of the loss of carbon. Another factor of vital importance in connection with the heating of manganese steel castings is the heat distribution. The heat should be distributed uniformly over the entire volume of the furnace and delivered to the castings at such a rate that the thin sections will not become seriously overheated while the heavy sections are relatively cool. In addition, the atmosphere within the furnace should be under control and preferably neutral, although for certain results it is necessary to vary the atmospheric condition of the furnace.

To meet successfully the various heat treating specifications which have been accurately determined to insure a uniformity of product, the segregation of castings becomes necessary as well as the proper selection of furnace for each classification of castings.

Further factors which are of utmost importance to proper heat treatment, are the simple, effective and reliable means for handling the material in such operations as loading and unloading the furnace, quenching the castings, etc.

The conditions referred to in some of the preceding paragraphs are inherent difficulties and were overcome by the Pettibone Mulliken Co., Chicago, only after much experimentation. This manufacturer developed exacting requirements and insisted that they be fulfilled in the design of furnace and equipment. Careful analysis of conditions and requirements and consultations with eminent furnace authorities and metallurgists led to the installation of the furnace shown in Fig. 4, left. The construction of this furnace is decidedly novel, involving a number of new features which were designed by W. A. Darrah, president, Continental Industrial Engineers Inc., Chicago.

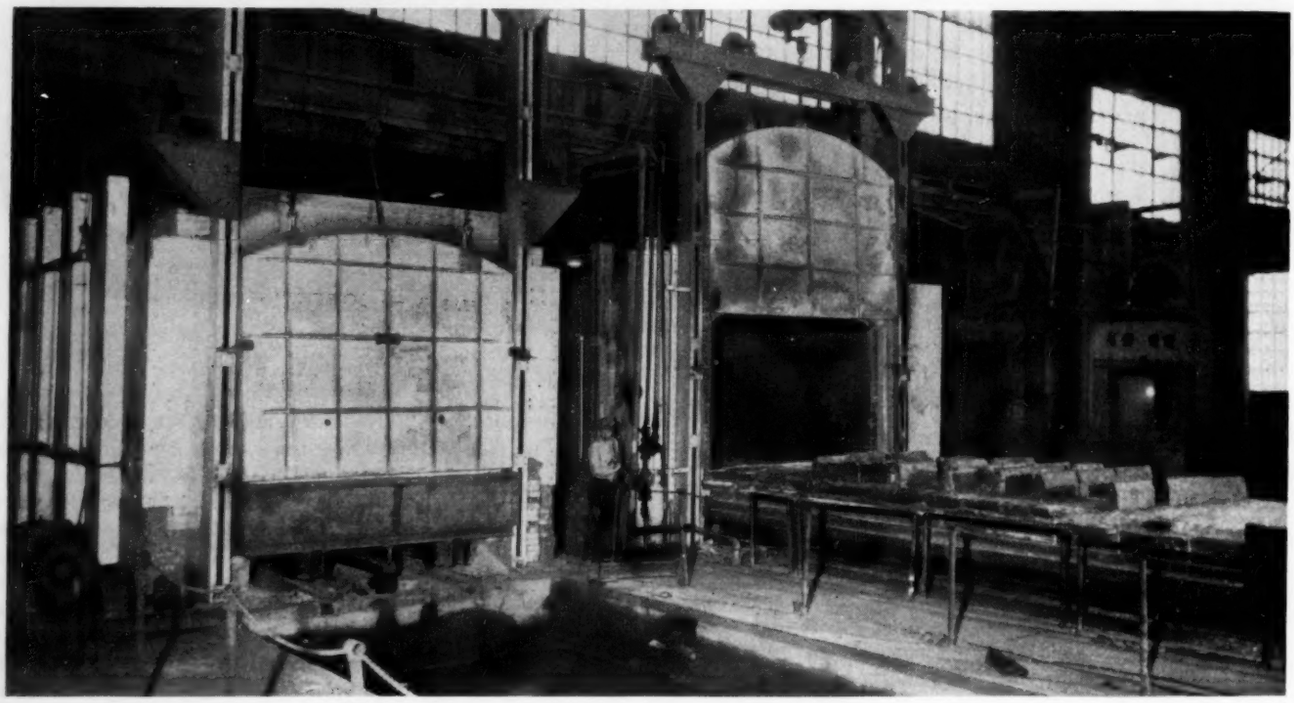


Fig. 4—Two gas-fired furnaces built for annealing manganese steel castings. Both are specially constructed for specific requirements

A general view of the furnace is shown at the left in Fig. 4. Fig. 5, a plan view, gives a general idea of the arrangement of the furnace. The fuel used is city gas having a heat value of 530 B.t.u. per cubic foot. It is delivered to the burners at a pressure of approximately 12 pounds. The burners are of the single-valve control type and are designed to give great flexibility, permitting a wide range of heat delivery by simple valve

adjustments. A series of eight burners is used on each side of the furnace uniformly distributed, thus making it possible to obtain accurate temperature regulation between the front and rear of the furnace.

In this furnace, combustion is confined to a specially designed refractory combustion chamber in such a manner that the correct volumes of air and gas are allowed to burn without dilution. The exact time required for the chemical combination of the oxygen with the combustible material in the gas has been accurately calculated and the design so arranged that no flame enters the chamber containing the castings.

This arrangement is particularly desirable for the reason that direct combustion in contact with alloy steel castings is a frequent source of unequal local heating, excessive scaling and sometimes the cause of variation in the chemical composition of the surface of the castings at various points. Naturally, having developed the most satisfactory formula for manganese steel, it is undesirable to allow variations from this formula, even in isolated points on the surface.

Temperatures Prove Uniform

The furnace design also takes account of the fact that while heat may be conveyed both by convection and radiation, yet at temperatures in the neighborhood of 1900 degrees Fahr. radiation plays a much greater part in heat transfer than does convection. It is interesting to note that the transfer of heat by convection is of course dependent upon the flow of hot gases and, therefore, only with difficulty can the lower portion of furnaces be heated by convection. On the other hand, since radiation travels in straight lines from any hot source, no difficulty is encountered in delivering any desired quantity of heat by radiation to the lower portion of the furnace. Because of these principles, the furnace selected for this work has the unusual property of maintaining the hearth of the car at substantially the same temperature as the upper portion of the furnace.

Obviously such an arrangement is highly desirable if a uniform heat treatment of castings is required. The furnace design, therefore, is in keeping with the efforts to maintain uniformity of quality in all work produced. The furnace is approximately 8 feet wide, 18 feet long and 8 feet high, inside dimensions. The car hearth is about 4 feet off the floor and is constructed in a novel manner, so arranged that the disintegration of the hearth of the car is practically

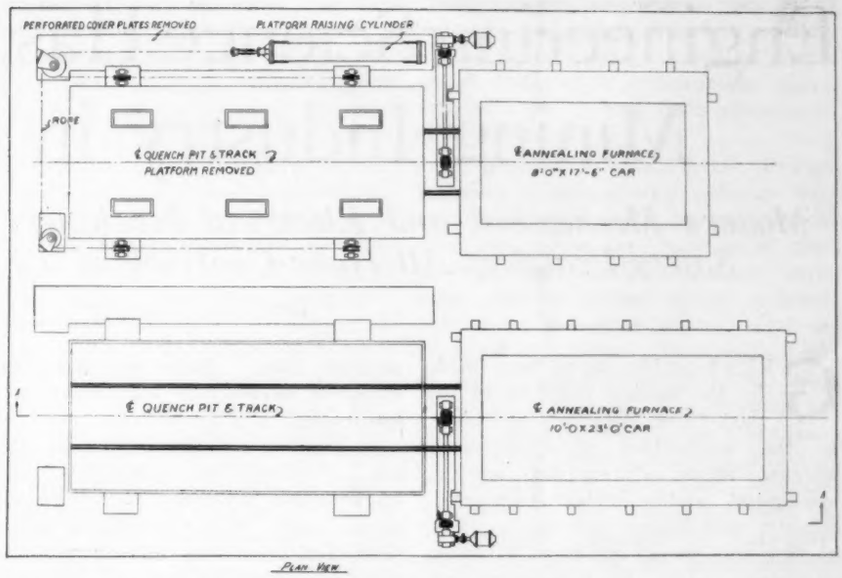


Fig. 5—Plan view of a battery of gas-fired annealing furnaces for manganese steel castings

negligible. The car is provided with a sand seal and equipped with roller bearings, making operation smooth and simple. The mechanism for driving the car consists of a rack and pinion coupled to a motor through a speed reducer.

The furnace is equipped with a rugged cast-iron door thoroughly insulated with refractory concrete and provided with inspection holes, permitting the ready inspection of the contents of the furnace from time to time.

The door is provided with an automatic sealing device so that when closed tightly, sand seal is insured at all times, thus preventing the leakage of air into the furnace or products of combustion out of the furnace. This door is operated by an electrical lifting device controlled by a lever placed on one side of the furnace at a convenient position.

First quality firebrick is used throughout in the construction of the furnace and 18 inches of insulation is applied on all sides. So effective is the insulation that there is a very small difference between the room temperature and the surface of the furnace shell. A difference in temperature of 50 degrees Fahr. was not exceeded even when the furnace was operating at a maximum temperature of 1900 degrees Fahr.

A large quenching pit, approximately 28 feet long, 12 feet wide and 13 feet deep is in front of the fur-

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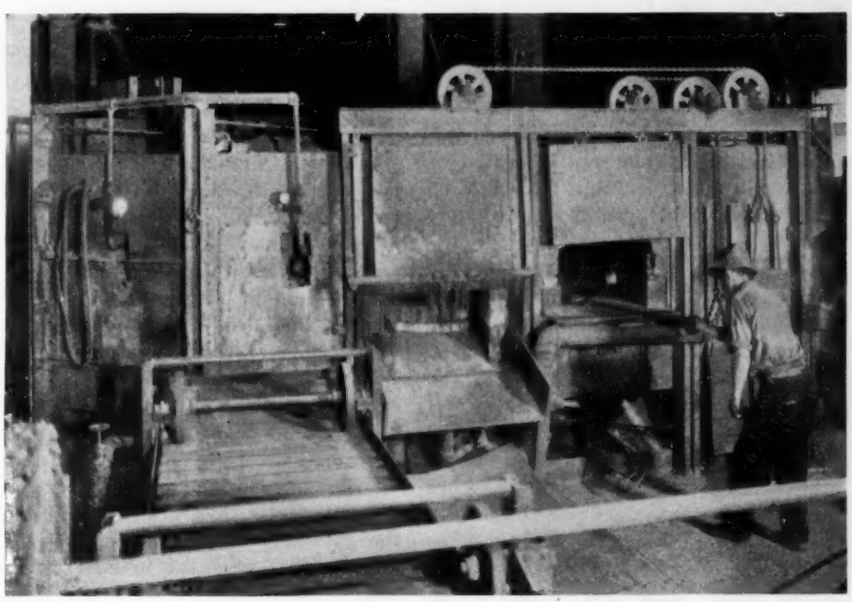


Fig. 6—A rotary-hearth heat treating furnace designed for light castings of thin cross section

Engineering Science Has Transformed Mining Industry in 30 Years

Modern Mechanical and Electrical Machinery, Improved Methods and Safety Practices All Have Contributed a Share to the Progress

By Scott Turner

GREAT strides have been made by the mining industry in the past three decades due chiefly to the application of engineering science. Metal mining, coal mining, mechanical and electrical mine machinery, metallurgy, petroleum engineering and safety practices all have undergone many improvements and refinments. These changes have come about gradually, being effected simultaneously in widely scattered places, through the experience and inventive genius of many men.

Behind them all the driving force has been increasing demand of an expanding population for more metals and minerals with which to advance civilization. More people, with an increasing per capita consumption, together with the exhaustion of the richer but smaller, and more accessible mineral deposits, have required that the engineer exploit faster and on a larger scale the lower grade but more extensive reserves. To do this at reasonable cost has taxed his ingenuity in every direction.

Improvements Were Necessitated

Advancing costs of labor, materials, and supplies, have necessitated improvements and refinements in practices, so a unit of metal or mineral may be produced with less labor and with fewer operating supplies. Better co-ordination and direction of work, elimination of duplication and other waste, and the multiplication of the work done per unit of man or other power, are means toward this end.

In America, this is all indicated by the so-called "speeding up process", whereby it appears that the average workman in the United States now puts out 30 times as much as the average man in China, Russia, or India, almost 14 times more than the native of Italy or Japan, 8 times as much as the worker in Poland, more than 3 times as much as the native of France or Australia, 2½ times as much as the German, nearly two-thirds more than the workman of Great Britain, and almost one-half more than the Canadian who is our nearest rival. Here we have the apparent anomaly of high wages and low costs.

In considering bituminous coal mining, it should be remembered that undercutting machines, replacing handpicks, were first introduced about 1890, and that from 1890 to 1924 the average production per man per day had risen from about 2½ to over 4½ tons. Contemporaneously, the percentage of coal produced by undercutting has risen from nothing, to about 70 per cent of the total coal mined. Other factors enter into this increase in each miner's productivity, but it is generally considered that undercutting machines have, in the case of bituminous coal, increased the output per man-shift by at least 50 per cent. Shooting off the solid in bituminous mines is steadily decreasing and is now restricted to about 11 per cent of our total production.

Coal-loading machines are being rapidly installed, the quantity loaded having increased five fold since 1923. The tonnage loaded by machines, however, is still barely 2 per cent of the total production, and thus, while their introduction is an interesting development and one which may later have greater effects than are now apparent, their use can hardly yet be classed as an important element in coal production. Electrically driven mechanical conveyors were installed at long-wall faces in European coal mines in 1913, but the use of such conveyors has come more recently in this country.

We have lived to see electricity largely supplant steam and compressed air underground. The mule is disappearing from the mines, and the operations equipped with electric haulage now produce 86 per cent of the total output. Concrete is coming to be used largely, and in the past 25 years has replaced other materials for the construction of overcasts, stoppings, and mine-portals. Steel tipples on concrete foundations now replace wooden structures on masonry footings. Roller bearings on mine car wheels make transport easier, and solid-body cars handled by rotary dumping devices are displacing end or side-gate cars. The panel system of mining, whereby large coal mines are opened by independent units, is making progress. Thirty years ago a 2000-ton mine was a large producer, whereas today operations are tending toward a larger unit basis, so that 5,000 to 10,000-ton mines are now not uncommon. Coal cleaning is now receiving increased attention, and many refinements are finding their way into current bituminous coal mining practice.

Anthracite Mining Progresses

Anthracite coal mining at first sight seems to present a less favorable picture, for in the same period of 30 years the production per manshift has only increased from 1.85 to 2.10 tons; there has been steady progress in engineering but the natural conditions have grown vastly more difficult. In the last generation, the average depth of workings has increased 77 per cent and the average thickness of the beds mined is barely half what it once was. The volume of water to be handled has greatly increased and many collieries have been driven from virgin coal to second or even third mining. The anthracite engineers have increased the percentage of recovery from as low as 40 per cent in 1880 to a present average of 65 per cent. These advances have been made possible by steady improvements in equipment, particularly the general

Starts Mining Building

THE accompanying interesting discussion of recent developments in the mining industry is taken from an address made at Lafayette college, Easton, Pa., by Scott Turner, director of the United States bureau of mines, Washington. The occasion was the breaking of ground for the new John Markle Mining building to be erected through the beneficence and generosity of John Markle, a distinguished mining engineer of New York and a trustee of the college.

introduction of electricity. Natural conditions have limited the use of cutting machines to about 2 per cent of the output, but in the adoption of face conveyors the anthracite mines are ahead of the bituminous.

Especially significant has been the progress in anthracite preparation, through increasing size of the breakers and the introduction of new methods of both wet and dry cleaning of coal. Sales of the small sizes, including pea, have been built up from 23 per cent of the shipments in 1890 to 35 per cent in 1925.

Electric power is now often brought from a distance, and there are fewer local fuel-burning plants; the flexibility of electric power is recognized. Electricity is used from the surface to the mine face in coal mining, but no successful electrically operated drill has been developed for use in metal mines, where rock drills operated by compressed air still prevail. Hand drilling in metal mines has gone out of fashion during the writer's time, and the tendency in air drills has been toward lighter and more powerful one-man drills; the heavy two-man drill of 20 years ago is now seldom seen.

Hand Work Eliminated

Loading machines frequently replace hand shoveling in underground mines, and electric haulage is becoming more common; underground conveyors and mechanical scrapers are frequently used. Steam is still used for hoisting in most deep metal mines, while hoisting by electricity is being more used in shallow or medium-depth mines. Large-capacity centrifugal pumps, operating against high heads, are replacing reciprocating pumps. Huge steam or electric shovels have improved open-pit metal mining results, and made possible many of our large-tonnage operations. At one strip-pit in Montana the output of coal per man per day is 47 tons, or ten times the average in the underground mines.

Even mine blacksmith and machine shops have been revolutionized in the past 30 years; drill steel is now sharpened by machinery, and delicate instruments control heat treatments which make former tempering processes appear extremely crude. All mechanical equipment is now faster than heretofore; higher speeds are noted in devices such as steam turbines, electric motors, turbine air-compressors, and centrifugal pumps. Oil engines for larger installations and gasoline engines for smaller plants are often seen at metal mines, replacing old wood-fired boilers. The mechanical equipment of all classes of mines is becoming more complex, and more skilled labor and better technical supervision are required.

In touching on recent progress in metallurgy, it should be borne in mind that mining and metallurgical developments are so intimately related that they are but component parts of the general movement toward improvement in the mineral industry. If advance in metallurgical methods had not been steadily maintained, progress in the art of mining would have been correspondingly curtailed. So dependent is our present civilization on metals, and so closely is our social progress interwoven with metallurgical achievement, that one can hardly discuss the advance of the art of metallurgy without dealing with the broader topic of the advance of mankind.

Within economic limitations, recent developments in ferrous metallurgy tend either toward increased quantity or improved quality. The former is the case with the iron blast furnaces, where by increasing the size and the mechanical perfection of the apparatus, greatly increased outputs have been attained; the same tendency is seen all the way to the open-hearth steel plant. Quality products, such as new alloys or compounds having special properties, are increasingly in demand and exert industrial influences all out of proportion to their weight or volume. Iron alloys containing tungsten, chromium, molybdenum, cobalt, nickel and vanadium all have become of tremendous industrial importance since the beginning of this century; new methods of heat treatment also are noteworthy.

In the nonferrous field, various forms of water concentration were in use at the beginning of the century. Sluices, buddles, jigs, vanners, tables and other forms of equipment were in general use for concentration or separation of various minerals. Then, less than 20 years ago, came flotation, that new magic of many variations; today more than three-fourths of our nonferrous ore is treated by this method. This single improvement has made usable such vast tonnages of low-grade or complex deposits, that an equivalent to a large increase in our natural resources has been accomplished, and we are assured of large supplies of relatively cheap metals for a long time to come.

Electrical Improvements Numerous

The use of electricity in metallurgy has increased rapidly during the period in question; it has been applied to the refining of copper, lead, and the precious metals, as well as more recently to the metallurgy of zinc; the ferroalloys were largely developed in the electric furnace, and in past years tin has been electrolytically refined. Aluminum is almost entirely a product of the electric furnace; the alkaline-earth metals and their alloys are other examples.

In connection with the recent progress in the mining industry the safety movement has received much attention. Since the beginning of this century, permissible explosives have come into use in coal mines, and today about one-third of our coal is produced by them. The recognition of the explosibility of coal-dust, and the introduction of rock-dusting in bituminous coal mines mark another great stride toward safety. The introduction of permissible electric equipment is an important step in coal mining, although as yet only about one-third of our equipment is of permissible character. The wide use of the electric cap-lamp has come within our era, and electric blasting is another important safety feature. The use of water on cutter-bars, steel-housed ventilating fans, and other devices, are significant changes. The spread of workman's compensation acts have hastened the advance of safety measures in both coal and metal mines.

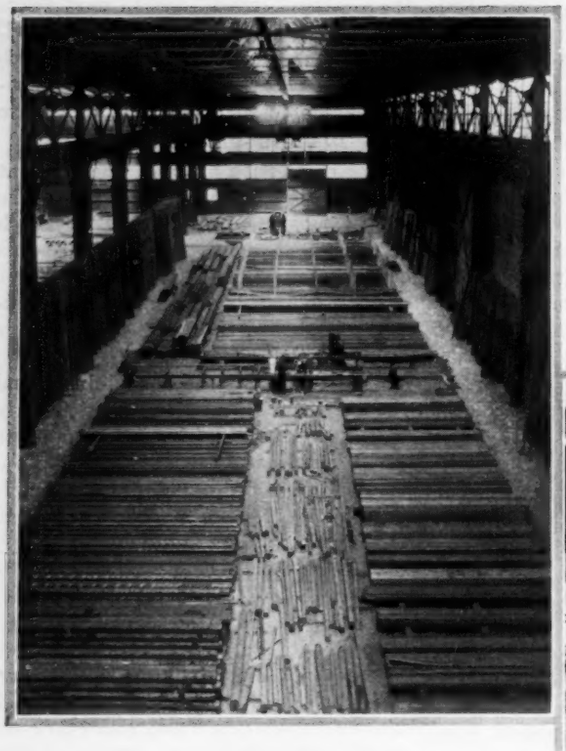
Safety Precautions Taken

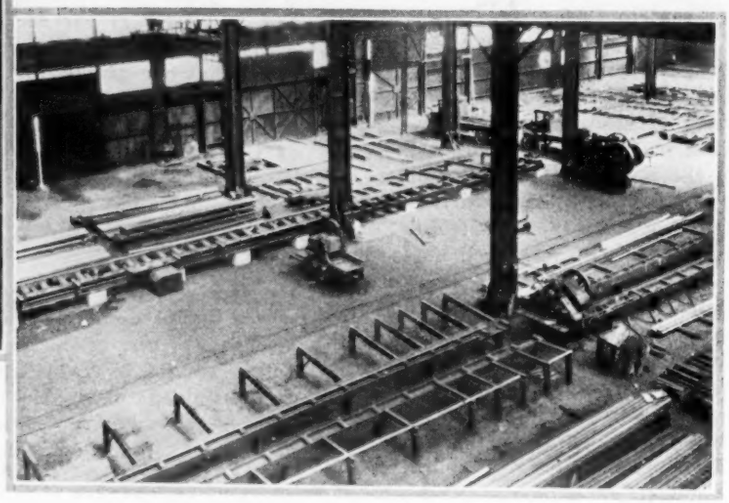
Within the period under review, safety and health conditions in metal mines have generally improved. Ventilation is given more attention; dust problems are dealt with by wet drilling and other practices. The use of low-freezing explosives is a step in the right direction, and the practice of blasting only at the end of the shift is a comparatively new development. Concrete, cement mixtures and structural steel underground have increased safety; multiplying the number of exits has diminished fatalities; better trolley-wire protection and the improved use of electricity generally, have assisted in bringing about safer conditions.

Maine Industry Picks Up

Maine is experiencing an industrial revival. American Can Co., Eastport, is occupying a new plant. North Maine Tool Co., has taken over a plant at Oakland where the production of edged tools will be increased. Shipbuilding activities at Bath are being revived. Several large paper mills are being constructed. General Chemical Co. has taken a long term lease on the property of the Katahdin Iron Works and plans to build a crushing mill and ship ore which is high in sulphur to Philadelphia.

JOBBING AN ESSENTIAL PHASE OF STEEL DISTRIBUTION





Above—A view of the length of the bar span, showing hacksaws in center and loading platform in rear. Right—Double angle shear with roll feed tables

IMPORTANCE of the warehouse to the metalworking manufacturer perhaps is underestimated by more users of its service than any other branch of the industry. As the primary sources of steel supply have increased in size and in operating efficiency, a secondary source has kept pace with them and has been developed into a valuable reserve line to which the buyer may turn in his emergency. Much has been said about the accomplishments of the producers of steel and their story is fairly well known, even to those whose interest is but casual. The warehouseman, however, just as steadily has invested his capital and revised his methods to keep abreast of the ever-changing conditions.

It is true that a relatively small percentage of the total tonnage of steel produced annually is distributed through the warehouses, but these jobbers have as customers, practically every user of steel in the country. Few industries can so plan their purchase schedules that they do not occasionally find it convenient and profitable to draw upon some warehouse stock of material to complete a contract or to rush an alteration in some department of their plant. Perhaps many more buyers of steel would reduce their investments in sizes used infrequently if they had a complete understanding of the thoroughness with which the modern distributor of steel in small quantities equips his plant to render service on every order.

The most recent addition to the Joseph T. Ryerson & Son Inc., group of nation wide warehouses, located at Cleveland, is an example of the development which this phase of the steel business has attained. In charge of this Cleveland warehouse as manager is Fred S. Doran, with a record of 23 years in the Ryerson organization. Prior to opening the Cleveland warehouse several years ago he was assistant sales manager in the home office at Chicago. The plant equipment is complete and includes facilities for handling and cutting all of the diversified lines of products which this company, which is celebrating its eighty-fifth anniversary in the warehouse field, carries at this point. Shears for sheets on which nothing heavier than 10 gage is cut, a larger shear for plates and a motor driven torch for burning plates up to four inches in thickness, permits the filling of orders in the extensive plate and sheet departments.

Various Shears Provided

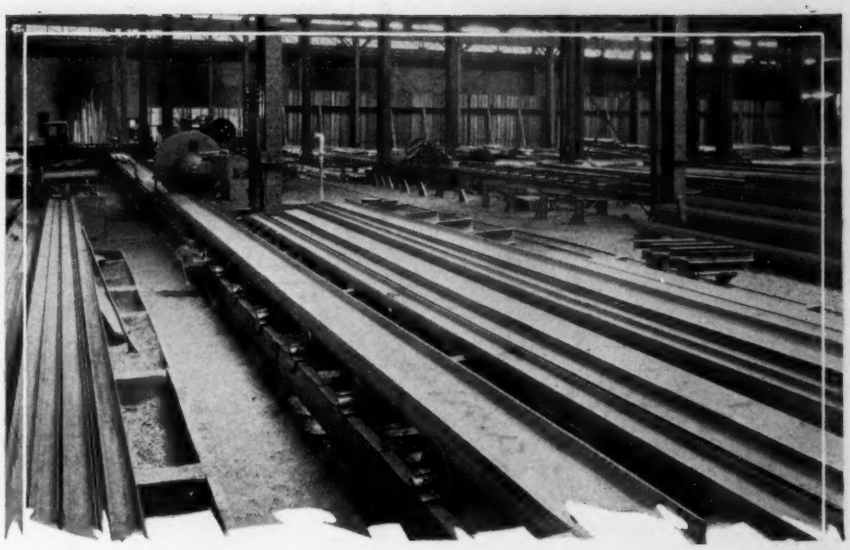
A friction saw capable of cutting all structural sections accurately and which cuts 24-inch standard beams in 30 seconds, serves the structural bays while angles are snipped off in a double angle shear so set that small angles are accommodated on one set of blades, while larger sizes are passed through the opposite side. Bar shears for bands and light bar sections are provided, while heavier bars are cut to fit the customers' needs on a shear which is used for flats, rounds etc.

A battery of hack saws, all roll table served, complete the bar cutting equipment at this plant, but additional band saws for cutting tubes or cold rolled are located in this wareroom, where heating equipment is of course maintained to keep the stock in good condition. The necessity for minimizing sudden temperature changes in sheet, hoop and band rooms is well known to the warehouseman and no little expense is incurred by him to guard against deterioration of stock.

Plant layout is of prime importance in all warehouses and of particular interest is the unusual arrangement of bars in the Ryerson Cleveland warehouse. The photograph reproduced here shows the bar span and its facilities for prompt and efficient bar order assembly. On either side of the concrete truckway which lines the span, 12-foot and 16-foot lengths are piled upright, while 36-foot bars are racked horizontally. Large flats, rounds, squares and hexagons are piled conveniently and sytematically near the cutting equipment and the span is served with two 10-ton cranes so that no interruption to service occurs as

inbound stock is unloaded from the cars at the end of the span opposite the shipping platform. At this shipping platform near the shear shown at the farther end in the illustration, orders are prepared for shipping, so that no delay occurs in loading on trucks, which of course is done by cranes.

The problem of economical handling in every span is provided for efficiently with high speed 10-ton cranes and every machine has the stock which is to be cut, rolled into position with power roll tables of special design. No expense has been spared to equip this warehouse and the visitor is impressed with the orderly precision in which all material is piled as well as with the size of the plant and the completeness of its varied stock of steel products.



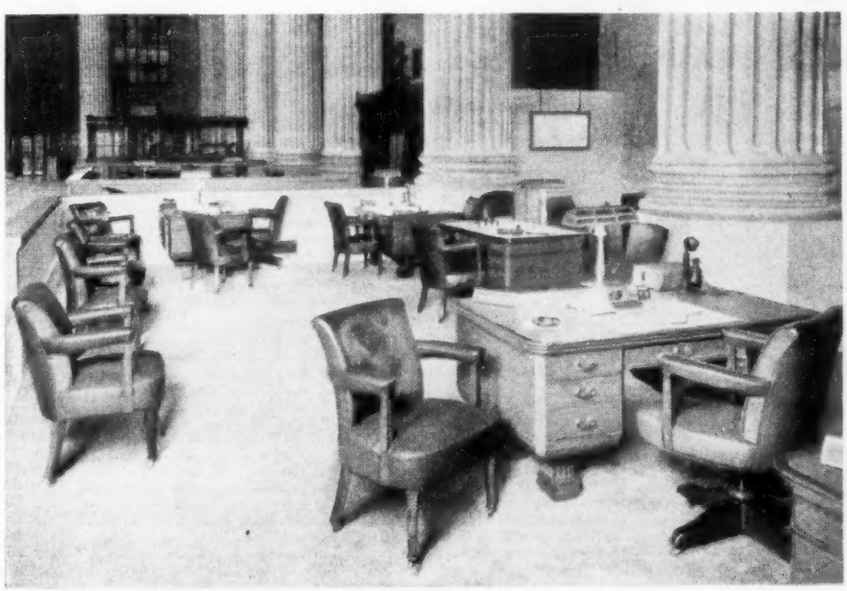
A view of the structural bay showing the high speed friction saw capable of cutting through a 24-inch beam in 30 seconds

Organized to handle a large number of transactions every day, the system for getting an order to the plant must needs be simple and complete. Ditto copies of all orders received are dispatched to the number of departments which must furnish stock on each order, so that they may work simultaneously. A shipping door is designated by the service department and the time when the order must be ready is assigned. With service the watchword, no one either in the plant or the office may ignore the time of assembly nor the place of shipment, for the warehouse cannot fail to perform to the customers' satisfaction and enjoy the confidence of the critical buyer.

With the average tonnage per order decreasing each year and with the buyer demanding greater accuracy in cutting, inspecting closely for camber or flatness and insisting on immediate shipment, the warehouseman has met his problems and solved them so that the user of warehouse service gets what he pays for in these days where rush orders are the rule rather than the exception. Truly, the warehouseman has contributed his share to the story of steel.

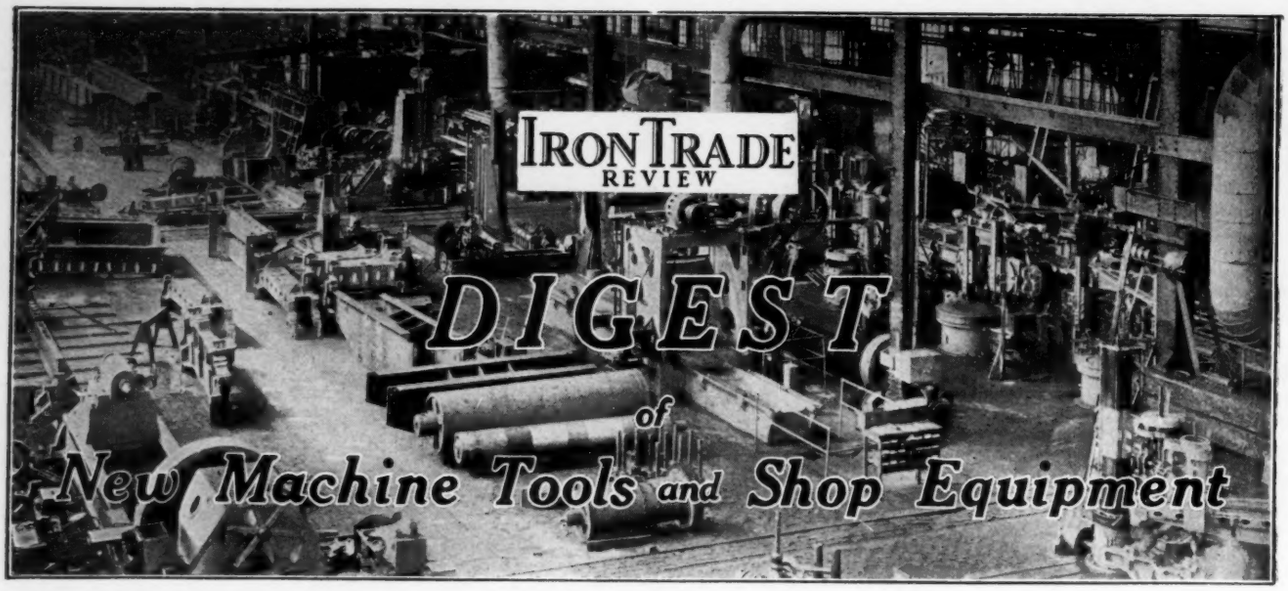
Aluminum Furniture Is Light, Strong, Graceful

ALUMINUM furniture so light that general office or anteroom chairs weigh less than 8 pounds and massive swivel chairs only 27¼ pounds is offered by the furniture department of the United States Aluminum Co., Buffalo. With lightness, it is claimed, is combined strength, immunity to ordinary wear, attractiveness and resistance to fire. The sheet, tubing and extruded shapes used in the frames are aluminum alloy heat treated after fabrication. Strengths up to 60,000 pounds per square inch with adequate elongation are available. After being formed in dies the parts are assembled and either welded or connected by a mechanical joint designed to develop the full strength of the sections. The completed frames are again heat treated to produce maximum stiffness and resistance to surface denting.



The aluminum frames are sand blasted to remove oxides and make impressions having re-entrant angles that will hold the priming coat firmly to the surface. A pigmented linseed oil base varnish is sprayed on the work and subsequently treated to a temperature sufficient to insure a firm bond. After surfacing, two coats of enamel are baked on and rubbed between operations. The hard, elastic finish resulting resists both chipping and abrasion, the manufacturers declare actual usage proves. Seats, backs and arm rests are mounted on separate aluminum frames which are held in place by invisible screws.

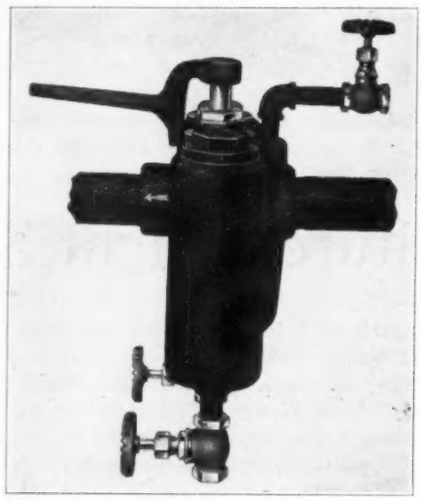
The general office chair, weighing only 7 pounds 12 ounces, is 18 inches from floor to seat, 20¼ inches from seat to top of back, with a seat 15 x 17½ inches. In the accompanying illustration is shown the officers' platform of the Mellon National bank, Pittsburgh, with its specially designed aluminum desks and chairs. J. D. Stevens is in charge of sales of aluminum furniture for the United States company; allied with him are S. A. Hartwell Jr. and C. C. Conner.



Blow-Out Arrangement on Duplex Strainers

No. 182

Anthony Co., 138 West avenue, Long Island City, N. Y., is manufacturing new types of single and duplex strainers, designed especially for oil-burning systems but applicable to systems conveying fuel oil, water, tar, paint, chemicals, steam, air, etc., containing appreciable percentages of solids or traces of viscous residuum. The strainers may be used either on pressure or suction lines. The single type is for use with liquids which contain only a small amount of foreign substances and is for application to pipe lines where it can be cut out of service temporarily for cleaning. The duplex model, shown in the accompanying illustration, consists of two straining chambers in one body, each complete in itself. One quarter turn of the cock handle cuts out either chamber as desired, thereby permitting the liquid to flow through only one chamber at a time. The direction of flow is from the outside to the inside of the baskets, so that the sediment collects in the reservoirs which surround them. The baskets or straining material are made of commercial mesh of suitable size. Drain connections are provided at the bottom of the device for removal of accumulated sediment. One of the advantages claimed for the device is the blow-out arrangement by which the chambers can be purged and the baskets blown free of obstructions without interrupting the normal flow of the liquid. The strainers are made in three sizes with ½-inch, 2-inch, and 4-inch inlets and outlets.



No. 182—Duplex strainer of new type

Bushing Press Equipped with Sliding Table

No. 183

Niles Tool Works Co., Hamilton, O., recently has constructed a 100-ton motor-driven bushing press equipped with a special sliding table, having in and out adjustment by a

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
163.	Welding and cutting torch	Air Reduction Sales Co.	Oxyacetylene; for general purpose	July 5
164.	Electric welding machine	Lincoln Electric Co.	300 amperes; gasoline engine driven	July 5
165.	Arc welding control equipment	General Electric Co.	Controls current in automatic heads	July 5
166.	Direct current generator	Buda Co.	Diesel engine drive; for crane operation	July 5
167.	Tractor swing crane	Frederic H. Poor Inc.	Gasoline driven; 10-foot radius	July 5
168.	Foundry cupola	Whiting Corp.	Fabricated from structural shapes; new design	July 5
169.	Paint spray gun	Alexander Milburn Co.	Accurate adjustment of spray possible	July 5
170.	Air compressor	Sullivan Machinery Co.	Motor driven; portable; compact	July 5
171.	Blacksmith hammer	Blacker Engineering Co. Inc.	Power operated; 2½-inch capacity	July 12
172.	Sensitive drill	Burke Machine Tool Co.	Bench-type; rigidly constructed	July 12
173.	Chain hoist	Chisholm-Moore Hoist Corp.	Heavy design; higher efficiency	July 12
174.	Packingless valve	International Oxygen Co.	Multiple-diaphragm; for high pressures	July 12
175.	Tumbling barrel	Ideal Industrial Machinery	Stars automatically separated and returned	July 19
176.	Wire straightening machine	Lewis Machine Co.	Double rope direct-motor drive	July 19
177.	Shock absorber for lamps	Thompson Electric Co.	May be fastened to standard lamp fixtures	July 19
178.	Die-cast instrument cases	Brown Instrument Co.	Light, corrosion resistant	July 19
179.	Segment grinding wheel chuck	Samuel C. Rogers & Co.	For face and surface grinders	July 19
180.	Truck crane	Universal Crane Co.	52-foot boom made in three sections	July 19
181.	Metal saw	Simonds Saw & Steel Co.	High-speed steel inserted teeth	July 19
182.	Single and duplex strainers	Anthony Co.	Blow-out permits quick cleaning	July 26
183.	Bushing press	Niles Tool Works Co.	Sliding table with separate motor	July 26
184.	Air compressor-tractor unit	Pontiac Tractor Co.	Separate radiator for compressor	July 26
185.	Rotary surfacers and cutters	Tindel & Phillips	Self-fastening blades	July 26
186.	Dragline shovel	Link-Belt Co.	2-yard capacity; several adaptations	July 26
187.	Flexible-rope drive	Boye & Emmes Machine Tool Co.	Quiet; avoids stretch and slip	July 26
188.	Double-pass air filter	National Air Filter Co.	Self-cleansing in oil bath	July 26

separate motor for pressing in and pressing out bushings in driving boxes. The sliding table is mounted directly on the base plate and is traversed in and out by a 1-horsepower motor. On this table is a heavy cast-iron block or step with a U-shaped opening on which the driving boxes may be supported when pressing out the brasses. The machine has sufficient capacity to press in or press out brasses 20 inches long. Width between the tension bars is 34 inches; the stroke of the ram is 24 inches; maximum height between top of sliding table and ram is 43½ inches. The pump of the two-plunger type is driven by a 7½-horsepower motor.

Compressor and Tractor Compose New Unit

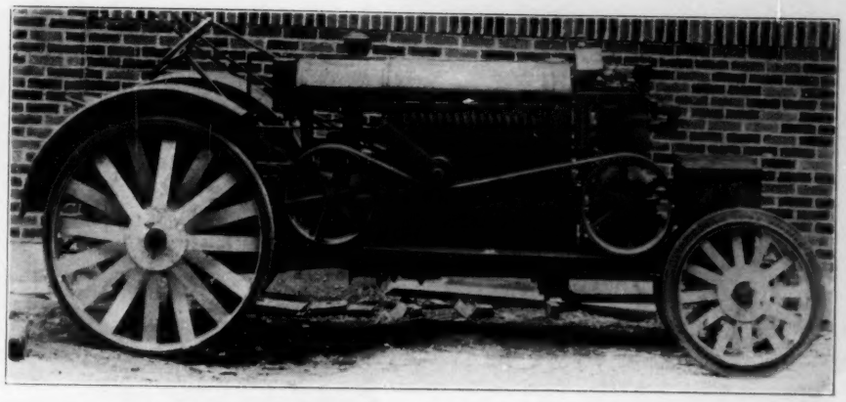
No. 184

Pontiac Tractor Co., Pontiac, Mich., has announced a self-propelling, four-wheel air compressor designed to handle heavy loads and to move about on a job under its own power. The unit consists of air compressor, air tank and tool box mounted on a frame which attaches to a tractor of either the McCormick-Deering or Fordson types, as shown in the accompanying illustration. The compressor, manufactured by the Wall Pump & Compressor Co., Quincy, Ill., has 124 cubic feet displacement with a separate radiator having pump-driven circulation. The separate radiator arrangement is said to hold the air from the compressor at a lower temperature than the motive-power radiator could. The compressor has a three-bearing crankshaft and force feed lubrication. Power to drive the compressor is furnished by the tractor through a power take-off pulley which is equipped with a clutch permitting the pulley to be thrown into or out of gear as desired. The motion of the belt is claimed to bring the belt tightener into correct relation with the belt.

Feature Self-Fastening Blades on Cutters

No. 185

Tindel & Phillips, 516 Commerce street, Philadelphia, have placed on the market a line of rotary surfacers, rotary cutters, slotters, and channelers of various sizes. The cutters feature two sets of blades to divide the cut, self-fastening, interchangeable, double blades and a strong solid plate. They are furnished in sizes ranging from 12-inch to 62-inch diameters. Roughing and finishing operations are accomplished simultaneously on the rotary surfacers, it is claimed. The blades on these machines are of the self-fastening, interchangeable, high-speed type, being fed out as fast as worn. The surfacers are built in sizes with 6-inch up to 24-inch diameters.



No. 184—Compressor-tractor unit showing compressor drive belt

New Shovel Is Designed for Larger Capacity

No. 186

Link-Belt Co., 910 South Michigan avenue, Chicago, has designed a full 2-yard capacity shovel, following the trend toward more powerful and greater capacity machines. The unit was constructed primarily for the following adaptations: A shovel with 30-foot boom and 18-foot dipper stick carrying a 2-yard struck measure capacity manganese-steel dipper; a dragline to handle 2-yard dragline bucket, shown in the accompanying illustration, for medium and medium heavy excavating, on a 50-foot boom; a clam-shell bucket of 2-yard capacity, for sand, gravel or materials of equal weight and consistency, on a 50-foot boom; and a trench shovel with 2-yard capacity. All these attachments are interchangeable without removing or disturbing the mechanism of the machine proper. Features of the unit are the cast-steel construction of lower and upper frames, self-cleaning crawler treads, large bronze-bushed crawler rollers, enclosed cut gearing, and bronze-bushed bearings throughout. The clutches are of the internal expanding friction type, the main drum clutch being 42 inches in diameter and the swing and travel clutches 30 inches in dameter. There is air space between clutch and brake surfaces for rapid cooling; the drum brakes measure 48 inches in diameter and 5 inches wide. A 13½-inch diameter center pin, adjustable from above, can be removed as a unit with the vertical travel shaft assembly, without removing any other parts. The machine in working condition is 12 feet wide over all at the lower frame and is built to be driven with gasoline engine, electric motor, or diesel engine. The full steel cab, entirely enclosing all upper frame machinery, is standard equipment.

Flexible-Rope Drive Is Used on Lathes

No. 187

Boye & Emmes Machine Tool Co., 2245 Spring Grove avenue, Cincinnati, announce as optional equipment on motor-driven engine lathes a flexible-rope drive instead of the usual geared-

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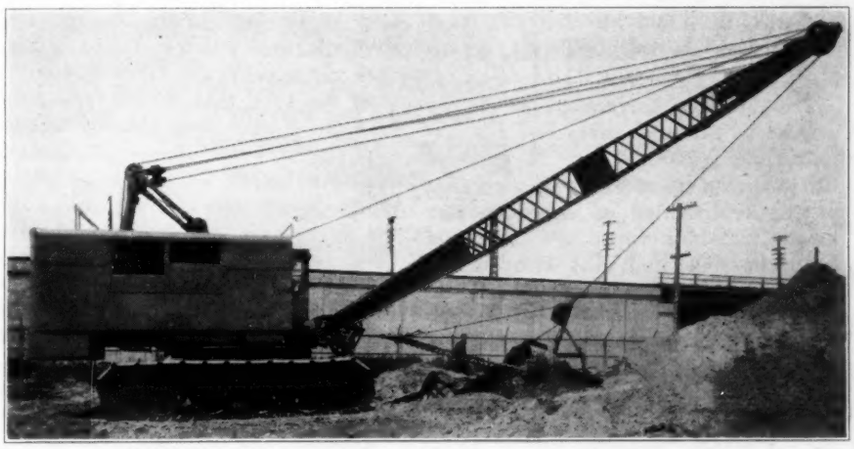
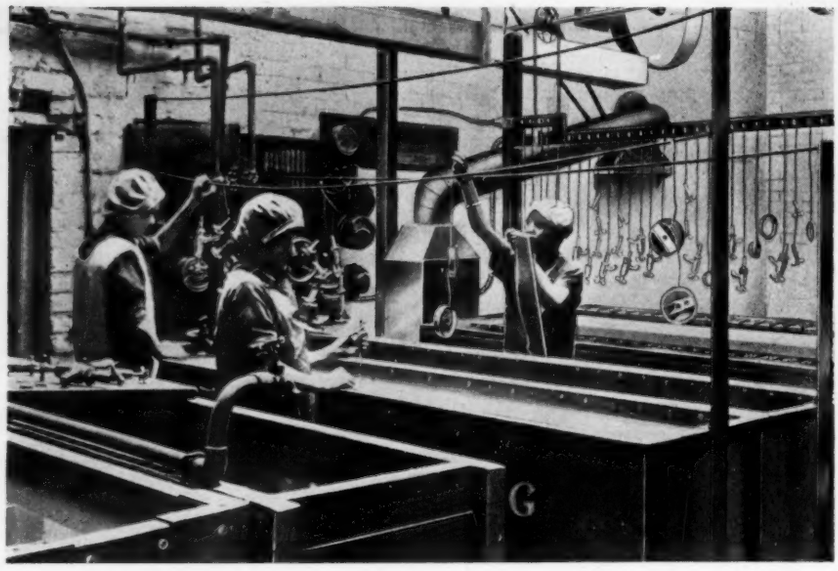


No. 186—Shovel of 2-yard capacity equipped as dragline

Chromium Plating Making Progress



Partial View of a Modern Chromium Plating Department

AT ONE of the ordinary meetings of the Societe des Ingenieurs Civils de France, in Paris, a paper was read by M. J. Cournot, "Chromium Plating by Electrolysis." This paper was published in the bulletin of the society. A study of this process has been specially made in Germany but investigations also have been carried out recently at the Conservatoire National des Arts et Metiers, Paris. In chromium plating by electrolysis insoluable anodes of iron or, better still, lead are used. The electrolite is a solution of chomic acid of which the concentration should be about 250 grams per liter. Various salts are added to the bath, the most important being chromium sulphate. The operation necessitates intense currents and also heating the bath. When the chromium deposit is correctly effected, there are great advantages to the process. The chomium deposit is extremely hard, it is highly resisting to chemical attack, it maintains a highly-polished surface, and its adherence on certain alloys, copper alloys, for instance, is entirely satisfactory. The speaker, however, emphasized the fact that in order to realize this advantage in full the process must be effected with the greatest care, and he also said that the process is really difficult to apply.

The principal arrangements to be arrived at are an intense electric current ranging from 15 to 25 amperes for each square decimeter, according to the composition of the bath and to the metal on which the chromium is to be deposited; the temperature of the bath should be about 50 degrees Cent., and only very little variation over or below that temperature is permissible; in certain conditions it is difficult to place the deposit in corners or recesses of the object; the chromium film as it is being formed opposes a considerable resistance to the current; the bath is quickly ionized and it is necessary to maintain the composition of the electrolite within narrow limits, especially with regard to the chromium sulphate. Another difficulty is the abundant escape of hydrogen, part of which remains imprisoned in the deposit. The bath emits dangerous vapors and it is necessary to install an elaborate system of aspiration in hermetically closed vats. It happens that certain pieces break in the bath, owing to internal stresses due to the acid of the electrolite. The adherence of the chromium plating on certain alloys, such as iron alloys and alloys of light metals, is unsatisfactory, and it is necessary to interpose a film of nickel or, better still, cadmium. It is impossible to immediately adapt an existing electroplating installation to chromium plating. Finally, the cost of the process is high.

Practicable in Mass Production

Mr. Cournot stated that in Germany it is considered that the chromic acid should be rigidly exempt from sulphuric acid. However, the lecturer does not concur with this opinion; in fact, he said that recent researches made in France and America showed that the presence of a small percentage of sulphuric acid is indispensable. In conclusion, Mr. Cournot stated that the process is not one that can be very general or in current practice. It is, however, practicable in the case of mass production parts, and also for certain parts used in high-priced automobiles, for instruments of precision, surgical instruments, interior decorations, sanitary apparatus, etc.

Probably no metallurgical development has made greater progress of late than chromium plating. Anticipating an undoubted and ever increasing demand for goods subjected to this process, Evered & Co. Ltd., Surrey Works, Smethwick, near Birmingham, England, has formed a subsidiary company, the British Chromium Plating Co. Ltd., to undertake this work. New works have been constructed and the most up-to-date plant installed, generally considered to be the largest and best in Great Britain. The present firm of Evered & Co. Ltd., itself is a very old established one, dating as far back as 1809 as a brass foundry, but the range of manufacturers has since been considerably widened.

The plating shop of the British Chromium company covers an area of 7200 square feet. The vats vary in size from 3 to 18 feet, so that work of great variety and size can be undertaken. The current for the deposition of the metal from the chromium solution is supplied by generators totaling 14,000 amperes. The plating shops are spacious, clean and excellently lit, and an adequate number of washing and cleaning tanks are installed.

The gases liberated from the chromium solution during the process are disposed of by an efficient exhaust system. The plating vats themselves are steam heated, and the current controlled by separate voltmeters and ammeters. Nickel and copper plating vats are included in the shop's equipment.

The polishing shop, which contains lathes electrically and independently operated, is completely partitioned off from the main shop and is fitted with an electrically operated dust extracting plant. To complete this up-to-

(*Concluded on Page* 245)

Editorials

Miners' Union Bows to Inevitable
U. S. To Reinforce China—with Bars
Use More Nonferrous Material in Autos
New High Looms in Building Steel
1928 May Prove Banner Ingot Year

Strike Against Economic Law Fails

FEW strikes in the history of American trade unionism have presented such a simple but forceful lesson in economics as that which has just been abandoned by the United Mine Workers of America. It has demonstrated to trade union members everywhere two important facts, first of which is that leaders cannot be followed blindly in rash attempts at dominating industry, and second that demands made at variance with economic conditions are foredoomed to failure, regardless of how powerful may be the organization that tries to enforce them.

When the strike was called in the bituminous coal fields a year and a half ago the mine operators protested that they could not pay the Jacksonville scale of $7.50 a day and compete with nonunion properties. The United Mine Workers insisted that they could, and they would, or they never would reopen. The result was that the nonunion mines found markets for their product, the supply was ample for the demand; the public scarcely felt the effect of the strike. The chief sufferers in this strike were the operators and the miners themselves.

Now the light of reason spreads over the camp of the mine leaders. After seven days of consideration they permit each district to effect settlements "upon a basis mutually satisfactory." They no longer insist on retaining the central competitive district as a unit for negotiations, and no longer demand continuation of the Jacksonville scale. It was unfortunate, of course, that the strike had to come, but it undoubtedly will have a beneficial result in impressing on unionism the wisdom of caution, and on all interests the desirability of study of mutual problems.

Structurals Near Two New Records

ONE new record, and possibly another, appears likely to be established in the structural field this year. With first half year bookings, as recently announced by the department of commerce, 200,000 tons in excess of the corresponding period of last year, with the first half total of 1,586,250 tons slightly more than half of the record of 3,063,500 tons placed during all of last year, and with structural buying usually heavier in the last six months, prospects appear bright for a banner year in bookings.

It is interesting to note also that the sharp gain during the first six months was made in the face of an 80,000-ton decline in the New York metropolitan district, which normally consumes 20 to 25 per cent of the country's structural steel production. Activity in that district now is undergoing a marked revival.

The possibility of another new record is in shipments. While not quite so promising as in bookings, the outlook appears favorable. As in bookings, shipments usually increase in the last half. With bookings during the first six months substantially heavier than in the corresponding period of recent years, and 1,455,500 tons already reported for first half, the record shipments of 3,218,400 tons in 1926, which many believed would not be threatened for several years, do not appear beyond reach.

Chinese Soldiers and American Steel

SOLUTION of China's difficulties conceivably may come through American steel products. Revolution has caused mobilization of tremendous armies, some 3,000,000 men being under arms. The problem is to demobilize them. Western nations found economic difficulties in this process after the war and some of its effects still are potent in their effect on business.

The suggestion has been made, and is being pushed, that this great army be set at construction of public works. First among these are good roads, sadly lacking now. Such employment is believed to offer not only employment for the idle soldiers but its more remote effect will also be greater unity of the nation, though closer communication.

American steel enters this plan as a material for reinforcing concrete roads, in roadbuilding

machinery and in other ways. A further look brings the conclusion that good roads will demand mobile transportation units to utilize them. This means automobiles, and here the United States leads. The connection between the marauding soldiers of Chinese armies and the steel business of the United States is not so remote as might appear at first glance.

Ingots Headed for Another Record

STEEL ingot production established a new half year record during the first six months of 1928, and for that matter, output was the highest for any consecutive six months in history. Although the American Iron and Steel institute in compiling its figures now considers only bessemer and open-hearth ingots, the total for these two processes, with 24,792,883 gross tons, was 639,074 tons better than the previous record of 24,153,809 tons made by all processes in the first half of 1926. It is reasonable to expect that the output of all other processes during the half just closed was not less than 75,000 tons, in which event the total excess over the 1926 period would be 714,000 tons. On this basis, the average daily rate in 1928 was approximately 160,500 tons, against 155,831 tons per day in 1926.

To equal the full year record of 46,936,205 tons in 1926, it will be necessary, therefore, to produce only 22,068,322 tons in the last half of the present year. This would require an average of total output of 3,678,053 tons each month or an average of 141,500 tons per day. Operations in the first half of this year averaged 3 per cent over the corresponding period of 1928, and if it is possible to retain that margin, the output in the next six months will average 146,000 tons per day, or 3,797,000 tons per month and will aggregate 22,782,000 tons. This would be 714,000 tons more than required to equal the 1926 record.

Metals Gain Automotive Favor

USE of nonferrous metals in the automotive industry in 1927 declined only 6 per cent, according to the American Bureau of Metal Statistics, while production of cars and trucks decreased 21 per cent. Maintained consumption of nonferrous metals is the more impressive because of the decrease of nearly 21 per cent in the use of steel in the automotive industry last year, according to the consumption analysis by IRON TRADE REVIEW.

The comparison is that of last year with 1926, the peak year for autos and for steel use in them. On the other hand, the peak year of nonferrous metal consumption in this industry was 1925. Even so, the comparison of last year with 1925 shows a decrease of only 9 per cent in the use of nonferrous metals and a decrease of nearly 20 per cent for steel.

Among nonferrous metals the most remarkable showing is that of zinc. It increased 900 tons to a total of 22,200 tons last year, while all other metals fell off. Copper decreased less than 4 per cent to 99,000 tons. Aluminum has been subject to the widest fluctuations, falling last year to the smallest in a number of years at 20,600 tons. The total of nonferrous metals was 169,400 tons and that of steel 3,835,682 tons.

In tonnages the two groups are greatly disproportionate, but on a total valuation basis, with steel at a few cents a pound and nonferrous metals priced several times as high, the two would not be nearly so far apart. Moreover, the tonnages given do not include the copper in generators nor the lead in batteries. The tendency in the past year to use a greater amount of nonferrous metals in each car is a reversal of the trend of the past few years.

What Our Readers Are Thinking

American Heat Treating Impresses

To the Editor:

DURING my recent visit to the States, I was very favorably impressed with the installations which I inspected, more particularly those relating to the heat treatment of materials for the automobile industry.

The sheet steel which is used for the bodies, etc., must possess extra deep drawing qualities in order that it may successfully withstand the treatment it receives in the large presses in the automobile works, and it was particularly interesting to me to inspect the normalizing furnaces in which the sheets are individually treated in order that the necessary grain structure and uniformity of quality could be insured.

At one of the steel works which I visited I had the privilege of witnessing the actual tests which were carried out on this material before it was passed by the inspection department, and I noticed with interest the great care that was carried out in this inspection.

In the automobile works themselves I was distinctly impressed with the developments which have taken place in connection with the heat treatment of motor car parts, more particularly those relating to the annealing, hardening and tempering processes. These furnaces in their continuous operation and automatic temperature control enable material to be produced which is uniform in quality, and they can perhaps be more correctly described as machines rather than merely furnaces.

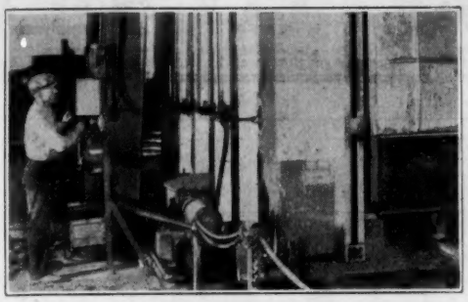
I should like to say that during my visit to the States, I was given every facility by the numerous works which I visited to inspect their plant, and I very much appreciated the courtesy which was extended to me.

W. PARKER, *British Furnaces Ltd. Westminster, London, Eng., July* 16, 1928.

IRON TRADE REVIEW

Volume 83, Number 4 — Published Every Thursday

E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*



Heat Treating Manganese Steel Castings in Special Gas-fired Furnace. Page 197.

BUSINESS statistical information is of special value to small manufacturers and sellers who as individuals would be unable to obtain the necessary facts and figures pertaining to their lines and to business in general, according to Mortimer B. Lane, of the United States census bureau. "Such statistics," he says, "have been an outstanding factor in sustaining prosperity in the past five years." Readers of IRON TRADE REVIEW appreciate that it publishes weekly more than five pages of business and industrial statistics.

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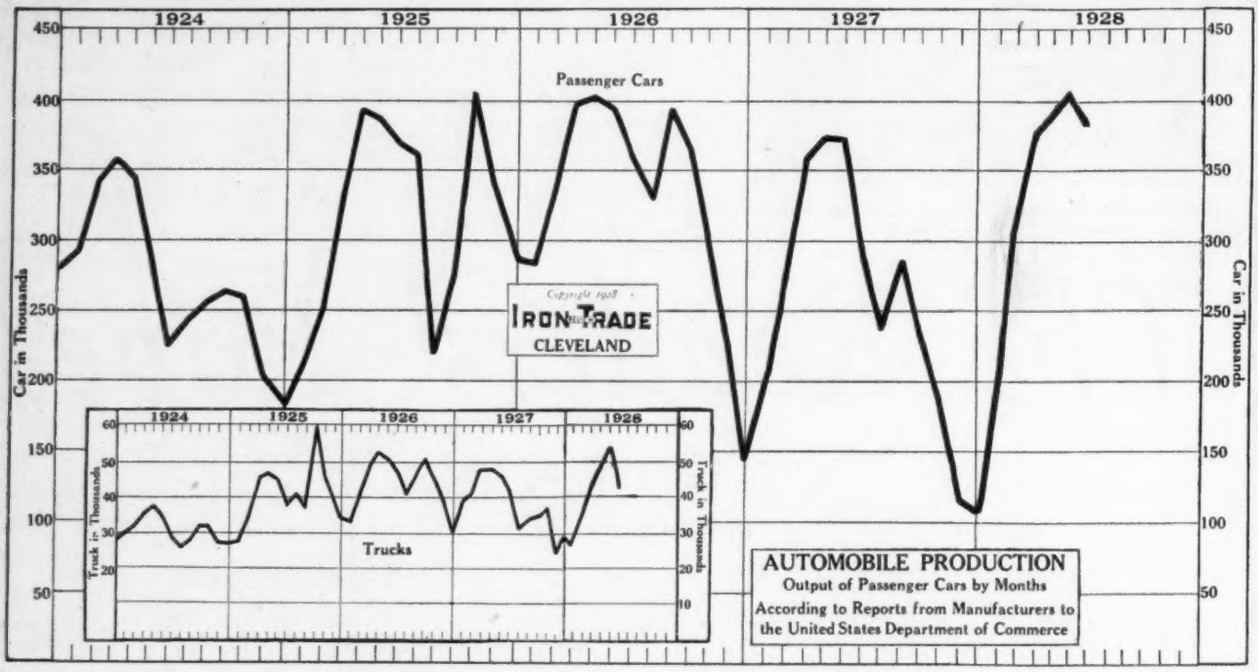
The Business Trend



Automobile Industry Giving Stimulus To Trade

By JOHN W. HILL, Financial Editor

ONE year ago the automobile industry was the drag upon industry which helped to slow down activities until the closing weeks of 1927. This year the industry is compensating for its adverse influence of 1927. It is giving stimulus and impetus to the general situation. During the first six months the output of cars and trucks was the second highest ever recorded.

NOT only did production of the first half mount impressively, but, what is even more significant, the usual summer letdown has been very small. From present indications the last six months of the year will bring a new record for output for that period. June production was the highest in history for that month.

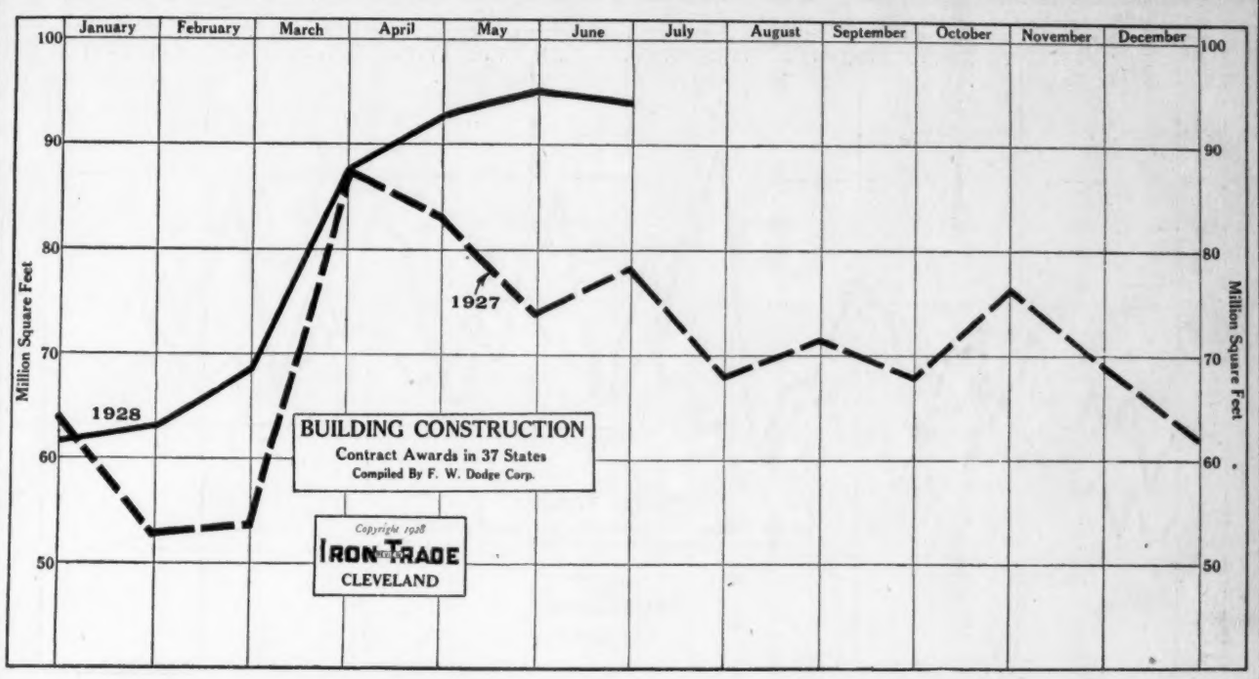
ESTIMATED production for the United States and Canada in June was 426,000 cars and trucks. This compared with 459,000 cars and trucks in May and with 342,000 in June of 1927. For the first half of the year estimated output of cars and trucks was 2,329,500 cars and trucks against 2,195,200 in the first six months of 1927 and 2,488,000 in the like period of 1927. An output in excess of 4,000,000 cars and trucks for 1928 is indicated.

IMPROVEMENT in the automobile industry this year has flowed from the fact that last year there was an underproduction of cars. Ford's shutdown pending development of a new model, created uncertainty and unsettlement throughout the trade. This cut down buying and production. This year Ford has been slowly getting into production, and at the same time other producers have been accelerating outputs.

AS A result of the unusual condition in the motor car trade, coupled with continued record breaking building construction activities and betterment in the petroleum industry, demand for iron and steel is being maintained at a good level for this time of the year.

ONE of the most significant developments relating to the automobile situation is to be found in employment figures for the Detroit district. Although there was some falling off in motor car output in June, and possibly in July, employment totals, as shown by the Detroit Employers association, continue to make new high records. This indicates expansion of Ford's payrolls together with greater employment by other producers in preparation of new models.

The Business Trend

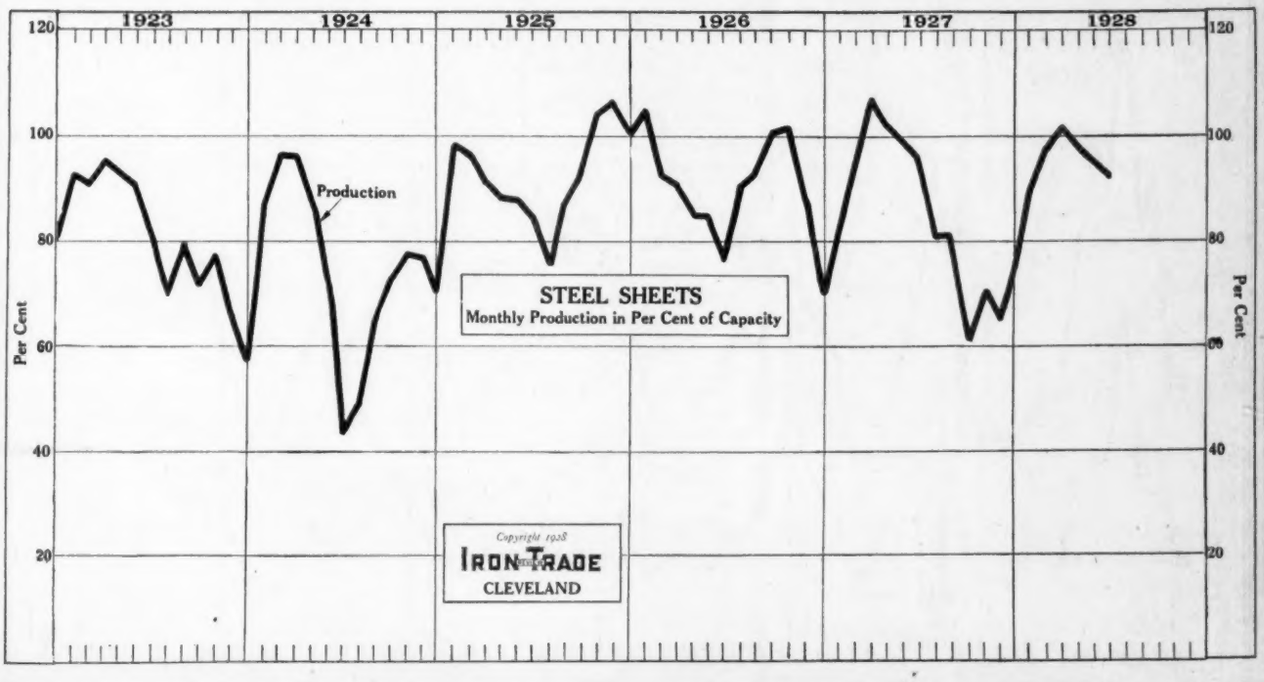


Building Construction

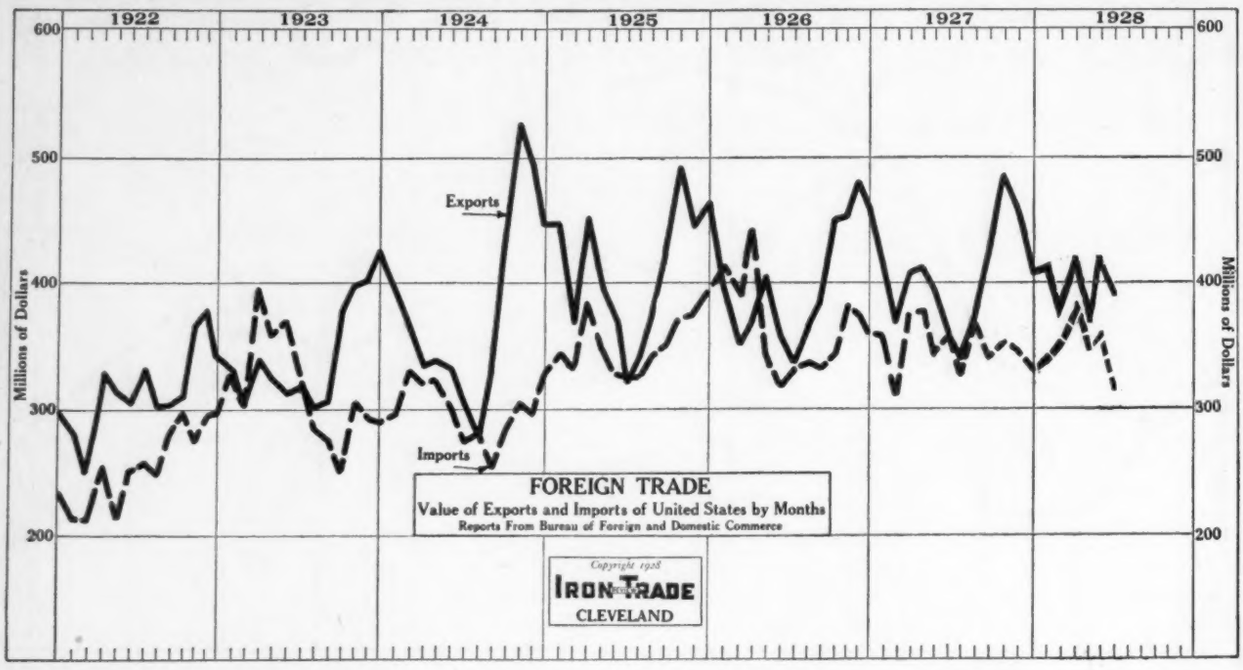
A NEW record for all time was established in construction contract awards last month. A grand total for 37 states, as computed by the F. W. Dodge Corp., was 94,381,000 square feet compared with 95,256,300 square feet in May, and 78,729,700 square feet in June, 1927. By values the contract awards during the first half of the year totaled $3,187,993 or a gain of 2 per cent over the same period of 1927. Much to the surprise of most business observers, building is continuing at high levels this year.

Steel Sheets

SALES of steel sheets by independent mills increased substantially during June. Production and shipments, however, were lower according to the National Association of Flat Rolled Steel Manufacturers. Production for the month of 311,629 tons represented 94.3 per cent of capacity and compared with 349,367 tons production in May, representing 95.6 per cent of capacity. Sale of 318,902 tons compared with 250,316 tons in May. Unfilled orders of 526,798 tons on July 1, against 427,477 tons June 1.



The Business Trend

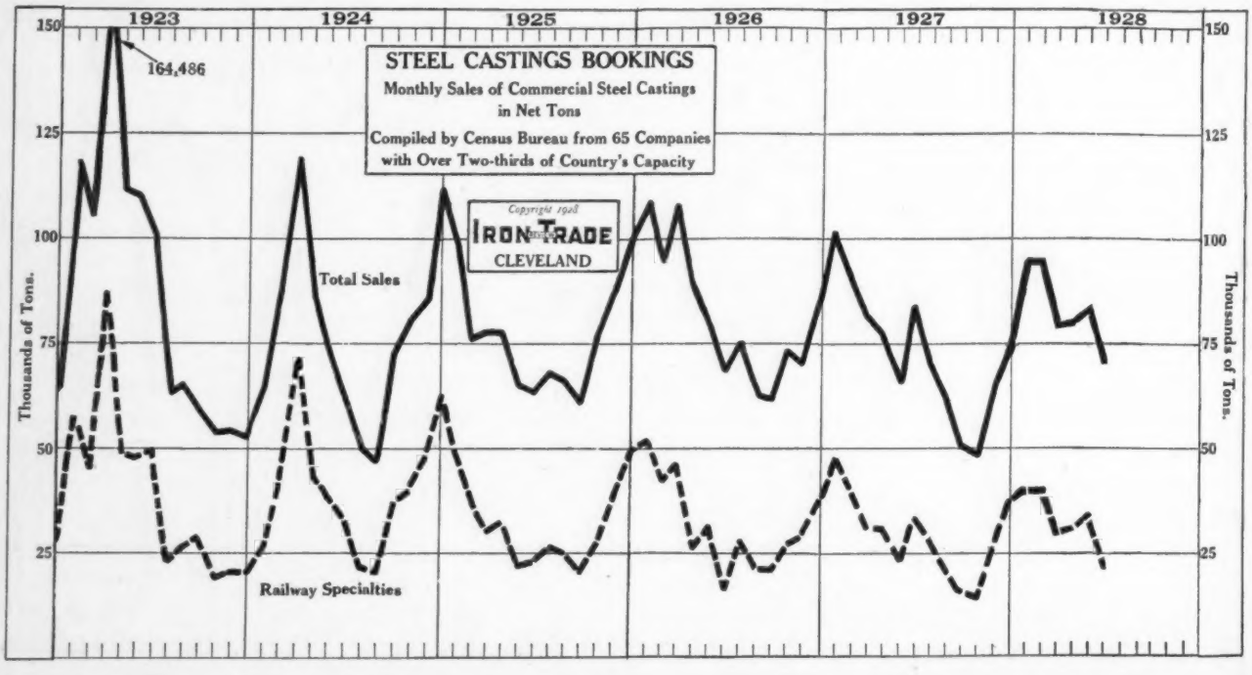


Foreign Trade

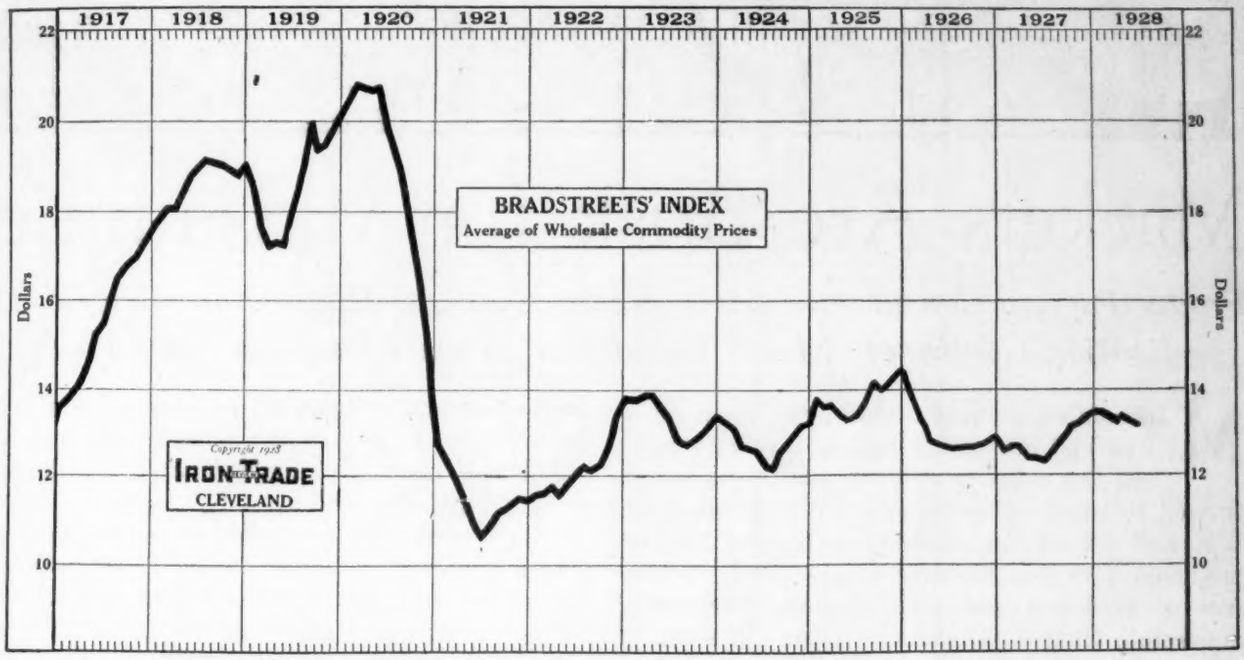
AMERICAN exports in June made a substantial gain over the total for the corresponding months of 1927 and 1926. Shipments of goods from the country last month totaled $390,000,000 compared with $423,000,000 in May and $356,000,000 in June, 1927. Imports declined from $355,000,000 in May to $317,000,000 in June. This compares with $354,892,000 in June, 1927. Six months' exports of $2,377,032,000 compared with $2,366,293,000 last year. June shipments were the highest for that month since 1920.

Steel Castings

NEW orders for steel castings in June as reported by leading manufacturers through the department of commerce amounted to 70,762 tons compared with 86,414 tons in May and 90,898 tons in June, 1927. Orders for railway specialties totaled 22,597 tons in June, the lowest for any month since last October. The total compared with 35,000 in May and with 39,000 in June one year ago. Miscellaneous castings orders of 48,000 tons, continued relatively high, comparing with 51,443 tons last year.



The Business Trend

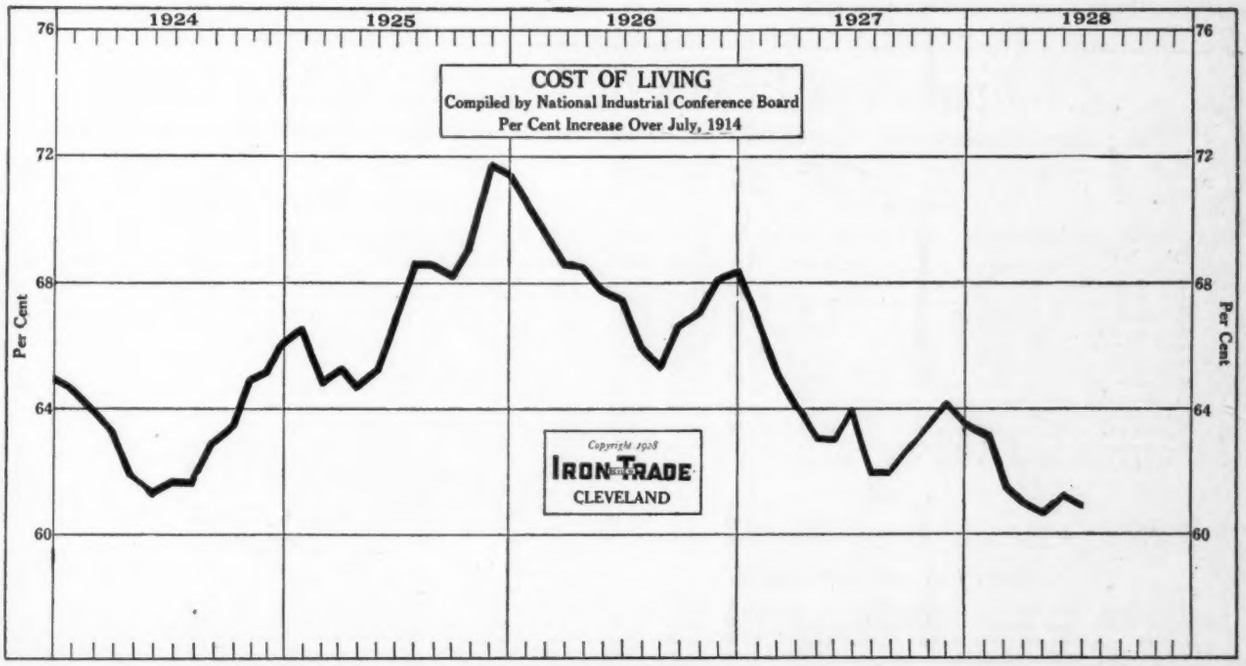


Bradstreet's Index

COMMODITY price changes in June were narrow, although a slight downward swing was noticed. Bradstreet's commodity price index as of July 1 was $13.14. This marked a decrease of four-tenths of 1 per cent from one month before and of 3.2 per cent from the beginning of the year. The index, however, shows a gain of 6.1 per cent over 12 months ago. Of the 13 groups of commodities, seven declined during June, three advanced while three remained unchanged.

Cost of Living

LIVING costs were lower during the last month. The index of the cost of living, compiled by the National Industrial Conference board stood at 160.9 for June, compared with 161.5 for the preceding month. The index shows a drop of 4 points from 12 months before, when it stood at 164.8. The decline in rents, reflecting the weakened condition in real estate throughout the country, has been the most important factor in the drop of living costs. Clothing and fuel and lighting are little changed.



Markets Are Brisk for Midsummer

Production and Consumption Alike Resist Seasonal Handicaps—Price Stabilization Continues—Sheets Unusually Active—Pig Iron Sales Fair

MIDSUMMER inertia will bear down upon iron and steel until Labor Day, but rarely has the industry entered this trying period so well fortified. It is noteworthy that consumption and production, striking a balance for all products, give ground exceedingly slowly in the face of vacations and other seasonal handicaps, and retain their lead over last year. In some of the light steel lines this is proving the best July in several years.

Trend in Prices Toward Strength

Changes in the price situation the past week have been mainly on the side of strength. Pig iron, scrap and other raw materials are better in hand. Semifinished steel is a shade stronger, with higher asking prices for the fourth quarter. Determination of producers of heavy finished steel to enforce advances this quarter is more marked and, at this season, evidences less relation to volume than to a desire to get on a more remunerative basis. Excepting possibly cold rolled strip, it is harder to duplicate recent low prices.

Hot weather is proving the usual hindrance to production and in some cases, notably at tin plate mills, resort is had to extra turns. Steelmaking operations are little changed at Pittsburgh at about 70 per cent and are off 3 points at Chicago to 75 per cent. Buffalo, however, is up 2 points to 79 per cent and in the Mahoning valley two more sheet mills bring operations in that branch up to 91 per cent, the highest of the year. Tin and strip mills are at capacity, and one more open hearth has been lighted. Steel corporation subsidiaries are operating this week at 75 per cent, an increase of 2 points over last week, and independents at 68 per cent, giving the entire industry an average of 70 per cent, fractionally higher than a week ago and about 3 per cent over a year ago.

Pig Iron Melters Are Buying

Pig iron selling is receiving a lift from those melters who have deferred third-quarter contracting and been using their carryover. Heavier trading is reported at Cleveland, Buffalo, New York and Cincinnati, the week's sales exceeding 50,000 tons. Good-sized requirements are being closed

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	July 25, 1928	June 1928	Apr. 1928	July 1927
PIG IRON				
Bessemer, del., Pittsburgh	$18.76	18.76	19.26	20.26
Basic, valley	16.00	15.81	16.75	17.50
Basic, eastern, del. eastern Pa.	19.00	19.10	19.25	20.50
*No. 2 foundry, del., Pittsburgh	18.26	18.61	19.01	19.26
No. 2 foundry, Chicago	17.50	18.00	18.50	20.00
*Southern No. 2 Birmingham	15.50	15.90	16.00	17.45
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	19.00
**No. 2X, Virginia furnace	20.50	20.50	20.50	22.00
**No. 2X, eastern, del. Phila.	20.76	21.26	21.26	21.51
Malleable valley	17.00	17.00	17.25	17.50
Malleable, Chicago	17.50	18.00	18.50	20.00
Lake Superior charcoal del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.76	18.56	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	104.79	94.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.60	2.60	2.60	2.90
Connellsville, foundry ovens	3.50	3.50	3.65	4.00
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	33.00	33.20	32.75	33.75
Sheet bars, open-hearth, Pittsburgh	32.00	33.50	34.00	33.50
Billets, open-hearth, Pittsburgh	33.00	32.50	33.00	33.00
Wire rods, Pittsburgh	42.00	44.00	44.00	43.00

	July 25, 1928	June 1928	Apr. 1928	July 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.85	1.85	1.85	1.80
Steel bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Philadelphia	2.17	2.17	2.17	2.12
Iron bars, Chicago	2.00	2.00	2.00	2.00
Shapes, Pittsburgh	1.85	1.85	1.85	1.80
Shapes, Philadelphia	2.01	2.06	2.08	2.07
Shapes, Chicago	2.00	2.00	2.00	2.00
Tank plates, Pittsburgh	1.85	1.85	1.85	1.80
Tank plates, Philadelphia	2.10	2.10	2.10	2.12
Tank plates, Chicago	2.00	2.00	2.00	2.00
Sheets, black, No. 24, Pittsburgh	2.65	2.70	2.75	3.00
Sheets, blue anl., No. 10, Pittsburgh	2.00	2.00	2.05	2.25
Sheets, gal., No. 24, Pittsburgh	3.50	3.55	3.65	3.85
Sheets, black, No. 24, Chicago	2.80	2.80	3.05	3.15
Sheets, blue anl., No. 10, Chicago	2.15	2.15	2.25	2.40
Sheets, galvanized, No. 24, Chicago	3.65	3.70	3.90	4.00
Plain wire, Pittsburgh	2.40	2.50	2.50	2.40
Wire nails, Pittsburgh	2.55	2.60	2.60	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
SCRAP				
Heavy melting steel, Pittsburgh	14.00	14.70	14.85	14.95
Heavy melting steel, eastern Pa.	13.00	13.15	13.75	13.75
Heavy melting steel, Chicago	12.50	12.60	12.75	12.10
No. 1 wrought, eastern Pa.	15.25	15.25	15.25	16.25
No. 1 wrought, Chicago	12.30	12.75	12.45	12.35
Rails for rolling, Chicago	14.50	14.85	14.00	14.60

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.05c to 2.15c
New York, del.	2.125c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland	2.04c to 2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.25c

STRUCTURAL SHAPES

Pittsburgh	1.85c to 1.90c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland, delivered	1.87½c and 2.09c
Buffalo	2.00c
Bethlehem	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.85c to 1.90c
Chicago	2.00c
Birmingham	2.05c
Buffalo	2.00c
Pacific Coast, c.i.f.	2.35c
Cleveland, mill	1.85c
Cleveland, delivered	1.87½ and 2.04c
Philadelphia, delivered	2.17c to 2.22c
New York, delivered	2.19c to 2.24c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c

RAIL STEEL

Chicago Heights	1.85c to 1.90c
Eastern mills	1.75c

IRON

Chicago	2.00c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet	1.85c to 1.90c
Chicago, billet	2.30c to 3.00c
Chicago, rail steel	2.00c to 2.60c
Chicago, rail steel, road and bridge work	1.85c to 1.95c
Youngstown, billet	1.90c to 2.00c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.10c
Shafting (turned, polished) Pittsburgh	2.10c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.15c

TIN AND TERNE PLATE

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, primes, No. 24	4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh, base	2.65c to 2.70c
No. 24, Philadelphia, delivered	2.92c to 3.02c
No. 24, Gary, Indiana Harbor	2.75c
No. 24, Chicago, delivered	2.80c
No. 24, Birmingham, base	2.90c

TIN MILL BLACK

No. 28, Pittsburgh, base	2.85c to 2.90c
No. 28, Gary, base	2.95c to 3.00c

GALVANIZED

No. 24, Pittsburgh, base	3.45c to 3.50c
No. 24, Philadelphia, delivered	3.72c to 3.82c
No. 24, Gary, Indiana Harbor	3.60c
No. 24, Chicago, delivered	3.65c
No. 24, Birmingham, base	3.70c

BLUE ANNEALED

No. 10, Pittsburgh base*	2.00c
No. 24, Philadelphia, delivered	3.72c to 3.82c
No. 10, Gary, Indiana Harbor	2.10c
No. 10, Chicago, delivered	2.15c
No. 10, Birmingham, base	2.20c

*Plus 10 cents for 40 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh, base	4.00c

IRON

No. 10, Pitts., blue ann., c.l.	2.80c
No. 24, Pitts., box annealed, 1-pass cold rolled, carload	3.75c
No. 24, Pitts., gal., c.l.	4.70c

(Turn to the following page)

quietly at Chicago, where silicon differentials are being waived on some boat iron. Carload buying is common in the Pittsburgh market, largely on account of unstable prices.

Coke prices generally are unchanged and shipments, both from beehive and by-product ovens, are lighter. While scrap prices continue easy in important markets, it is doubtful if tonnages could be placed at current levels. The $33, Pittsburgh, price on small billets is being tested this week by an inquiry for 6000 tons. A Youngstown maker of sheet bars has announced $33, a rise of $1, for fourth quarter.

Pittsburgh Gains as Chicago Slips

A moderate upturn in demand for heavy steel, notably plates and bars, at Pittsburgh offsets a slight recession at Chicago. Bar specifications at Pittsburgh have rarely been so heavy late in July. Miscellaneous ship, barge and tank work, including 4500 tons of tanks for export, aggregates well in that district. A loft building requiring 50,000 to 60,000 tons of shapes may be let at Chicago this fall. As rapidly as customer relations permit, the mills are working heavy steel up to the basis of 1.90c, Pittsburgh. Especially in the East are contracts scarce and hand-to-mouth orders general.

Typifying the sheet situation, specifications to the leading producer last week were the second largest this year, and operations of this interest have been stepped up from 74 per cent last week to 81 per cent this week. All classes of users, headed by the automotive industry, are heavy takers for the season. Backlogs are not accumulateing. Most orders are priced at 2.00c, Pittsburgh, for blue annealed, 2.65c for black, 3.50c for galvanized and 4.00c for autobody. Tin plate mills, averaging 95 per cent, appear headed for a record year.

Cold Drawn Bars May Be Advanced

Wire products seem to have benefited distinctly from the $2 per ton reduction several weeks ago which recognized widespread concessions, and users display their confidence by specifying more freely, especially for manufacturers' wire. An advance in cold finished bars is probable if higher prices for hot bars hold, but no step has yet been taken. Hot strip is perceptibly firmer, except to tonnage buyers, but large buyers of cold rolled can shade the current spread of 2.75c to 2.85c.

Withdrawal of the Seaboard Air Line's inquiry for freight cars leaves inquiry for only 820 cars pending, including 550 refrigerator cars for the Baltimore & Ohio. The Norfolk & Western railroad has placed 29,000 tons of rails with Corporation subsidiaries and 11,000 tons with Bethlehem. Heavy track fastening orders, totaling 7000 tons, have been booked at Chicago. Inquiry for track material at Chicago totals 8000 tons. Rail mills are at 60 per cent.

Reflecting the tendency toward strength, the IRON TRADE REVIEW composite of 14 leading iron and steel products is up 8 cents this week, to $34.97. The low point two weeks ago was $34.85.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (July 25, 1928)	$34.97
Last week (July 18, 1928)	34.89
One month ago (June, 1928)	35.30
Three months ago (April, 1928)	35.67
One year ago (July, 1927)	36.41
Ten years ago (July, 1918)	56.66
Fifteen years ago (July, 1913)	26.34

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIP

Hot strip, under 3-inch, Pitts. 2.10c to 2.20c
Hot strip, 3 to 6-inch, Pitts. 2.00c to 2.10c
Hot strip, 6 to 12-inch Pitts. 1.90c to 2.00c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 2.00c blue annealed basis.
Hot strip, bands, under 3-in., Chi. 2.30c
Hot strip, bands, 3 to 6-in., Chi. 2.20c
Hot strip, bands, 6 to 12-in., Chi. 2.00c
Hot strip, 12 to 24 in., Chi.... 2.10c
blue annealed sheet basis.
Cold rolled strip, hard coils, 1½ inches and wider by 0.100-inch and heavier, base Pitts., Cleve., (over 3 tons) ..... 2.75c to 2.85c
Pitts., Cleve., (1-3 tons) .... 3.00c to 3.10c
Worcester, Mass. 3.05c

ALLOY STEEL

Hot Rolled

F.o.b. Pittsburgh or Cleveland

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net price 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250	0.25	2.90

TUBING

BOILER

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch 42½
Charcoal iron, 3¼ to 4½-inch 9
Seamless hot rolled 3¼ to 3½-inch.... 56

Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On charcoal two 10's and one 2½ on 12,000 pounds or more.

COLD DRAWN SEAMLESS

F.o.b. mill in desirable quantities

Random length over 5 feet .....55 per cent
Selected lengths, 1 to 18 feet .....53 per cent

WIRE PRODUCTS

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base
Dealers 10 cents per 100 pounds extra

Bright plain wire, No. 9 gage.. 2.40c
Annealed fence wire 2.55c
Galvanized wire, No. 9 gage.... 3.00c
Barbed wire, painted 2.95c
Barbed wire, galvanized 3.20c

Per 100 lbs.

Wire nails $2.55
Galvanized nails, plus differ. 4.55
Polished staples 3.00
Galvanized staples 3.25
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply.... 2.55
Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts..... $20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CAST IRON WATER PIPE

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm..$34.00 to 35.00
Four-inch, Birmingham ..... 38.00 to 39.50
Four-inch, Chicago ..... 46.20 to 47.20
Six-inch to 24-inch, Chicago..... 42.20 to 43.20
Four-inch, New York ..... 41.50 to 42.60
Six-inch and over, New York.. 37.60 to 38.60
Standard fittings, Bir. base..... $100.00

Six to 24-inch base; over 24-inch; plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills..... 2.70c
Cut nails, l.c.l. f.o.b. mills..... 2.80c
Chain, 1-in., proof coil, Pitts..... 6.00c
Sheet piling base, Pittsburgh.. 2.25c

RAILS, TRACK MATERIAL

Standard bessemer rails, mill $43.00
Standard open-h'th rails, mill $43.00
Relaying rails, St. Louis.....$24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb..$22.00 to 27.00
Light rails, 25 to 45, mills..... $36.00
Angle bars, Chicago base..... 2.75c
Spikes, railroad, Pittsburgh.... 2.80c
Spikes, small railroad, ⅞-inch and smaller, Pitts..... 2.80c
Spikes, boat and barge, Pitts. 3.00c
Spikes, railroad, Chicago 2.80c
Track bolts, Pitts., steam roads 3.80c
Track bolts, Pitts., stand, jobbers .....70 off list
Track bolts, Chicago 3.80c
Tie plates, Chicago, Pitts..... $43.00

BOLTS AND NUTS

F.o.b. basing points, Pittsburgh, Cleveland Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝x6 and smaller take 10 per cent lower list.
Eagle list ..... 60 to 70 off

MACHINE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅜x6 and smaller take 10 per cent lower list.
Lag screws ..... 60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads 60 to 70 off
Tap bolts ..... 60 to 70 off
Blank bolts ..... 60 to 70 off
Stud bolts without nuts..... 60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

Nuts

Semifinished ..... 60 to 70 off

HEXAGON CAP SCREWS

Milled .....80-10-10 off
Upset 1 in. diam. and smaller .....85-5 off

SQUARE HEAD SET SCREWS

Milled .....80-10 off
Upset 1 in. diam. and smaller.....80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve..... 2.90c
Structural, c.l., Chicago..... 3.00c
**⅞-inch and smaller, Pitts.....70 and 10 off
Chi., Cleve. .....70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.....$6.50 to 6.75 off
Wrought, c.l., Chicago dist.....$6.70 to 6.90 off
Lock: To dealers .....85-5 off
Lock: To consumers .....85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth $33.00
Pittsburgh, bessemer $33.00
Youngstown 32.00
Cleveland 33.00
Philadelphia ..... 37.30 to 38.30
Chicago 33.00
Forging, Chicago 38.00
Forging, Pittsburgh 38.00
Forging, Philadelphia 43.30

SHEET BARS

Pittsburgh 32.00
Youngstown 33.00
Cleveland ..... 32.50 to 33.00
Chicago 35.00

SLABS

Pitts., Young., and Cleve..... $33.00

WIRE RODS

Pittsburgh, Cleveland $42.00
Chicago 45.00

SKELP

All grades, Pittsburgh ..... 1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%.... $4.55
Mesabi bessemer, 51½% 4.40
Old range bessemer 51½% 4.40
Mesabi nonbessemer, 51½%..... 4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%..... 8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent ..... nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese.. 11.00
North African low phosphorus 10.00 to 11.00
Swedish foundry or basic, 65%....none offered
Spanish and North African basic, 50 to 60 per cent..... 8.50 to 10.00
Newfoundland foundry, 55%.... 8.50 to 9.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian .....36 to 38 cents
Indian .....36 to 38 cents
Caucasian (53-55 per cent) ....38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton....$15.00 to 17.00
Washed gravel, imported duty paid, east. tidewater, net ton 15.50

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania .....$43.00 to 46.00
Ohio ..... 43.00 to 46.00
Illinois ..... 43.00 to 46.00
Kentucky ..... 43.00 to 46.00
Missouri ..... 43.00 to 46.00
Maryland ..... 43.00 to 46.00
Georgia and Alabama ..... 40.00 to 45.00

Second Quality

Pennsylvania ..... 35.00 to 38.00
Ohio ..... 35.00 to 38.00
Illinois ..... 35.00 to 38.00
Kentucky ..... 35.00 to 38.00
Missouri ..... 35.00 to 38.00
Maryland ..... 35.00 to 38.00
Georgia and Alabama ..... 30.00 to 35.00

SILICA BRICK

Pennsylvania 43.00
Joliet, Ill., East Chicago, Ind..... 52.00
Birmingham ..... 50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½ 65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base
Dead-burned grain magnesite.... 40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base.
9 x 4½ x 2½ 45.00

Pig Iron

Market Fairly Active—Largest Demand Noted in Michigan, Indiana and Ohio—Shipments Continue High—Prices Steady

DEMAND for pig iron is quieter than a week ago in some districts, although the market in Indiana, Ohio, Michigan and New York continues fairly active. Bookings aggregated 50,000 tons in those districts in the past week. New York reports 7000 tons placed by various melters. A majority of melters in the Chicago district are covered for third quarter. Business there in the first seven months of 1928 equals that of the comparable period of 1926. Iron delivered by boat from eastern lake furnaces is being offered at concessions, silicon differentials being waived in some instances. Barge transportation is encouraging delivery of more iron from Buffalo to eastern points. Though $16.75, base, valley, is the usual quotation, $16.50 is available to large buyers.

PITTSBURGH, July 24.—Pig iron sellers are booking small lots of foundry iron for regular customers at $16.75, base, valley. Large tonnage buyers, however have quotations from more than one source at $16.50 base, valley. Only one or two inquiries are pending. The Westinghouse Electric & Mfg. Co. has not yet placed its order for Trafford City, Pa., but will do so shortly. Little interest is noted in the market for malleable. After several bessemer iron consumers closed for quarterly requirements up to 1000 tons at a time the market again is drifting to single carloads, offered at $17, valley. Most makers of steel castings have low operating schedules, and interest in basic has lagged. The usual quotation is $16, valley, although large tonnage buyers claim they are able to uncover prices at least 25 cents lower.

Boston, July 24.—About 3800 tons of pig iron was booked in this district during the past week, of which Mystic Iron Works sold 2200 tons. Buffalo and New York state iron is obtainable at $16 to $16.50, base, furnace.

New York, July 24.—About 7000 tons of pig iron was closed in this territory during the past week. This included 550 tons of foundry iron for Harrison, N. J., plant of Worthington Pump & Machinery Corp., which went partly to Buffalo and partly to eastern Pennsylvania. A. P. Smith Mfg. Co., East Orange, N. J., wants 750 tons of foundry iron for fourth quarter. Another consumer contemplates purchasing around 2500 tons. Buffalo foundry iron continues $16 to $17, base, furnace, while on one or two special transactions in southern New England a lower equivalent has been done. Eastern Pennsylvania foundry iron is $19.50 to $20, base, furnace. Indian foundry iron with high silicon content now is $20.50 to $21 base, duty paid, tidewater. Dutch foundry iron, also high in silicon, is bringing $21 to $21.50, duty paid, net. Erie, Pa., has been placed on a parity with Buffalo so far as freight rates on pig iron to the East are concerned. The rate from Erie to Boston and points in Boston territory, now $5.92, will be $4.91 on and after Aug. 4. The rate from Erie to New York, Newark and other eastern points, including Philadelphia, will be reduced from $5.42 to $4.91. This places Erie in the same position as Buffalo in the competition for eastern pig iron business, except that Erie will have to pay $4.91 to certain points, such as Jersey City, Bayonne, Dover, Harrison, Passaic, Paterson, Bayway, Bloomfield, Mahway, etc., where Buffalo iron takes water competitive rates of $3.28 or $3.78.

Buffalo producers who contemplated storing iron along the New Jersey waterfront have not done anything other than to make tentative arrangements. The difficulty in obtaining lower rates for shipment of iron by barge from Buffalo to this port is the chief obstacle. It appears $2.50 per ton is the lowest barge rate which recently has been available, whereas Buffalo pig iron producers do not care to pay more than $2 on iron to be brought down for storage.

Philadelphia, July 24.—Pig iron is more active. About 5000 tons of basic was bought by two eastern consumers and about 15,000 tons more of this grade is to be placed in the next day or two at prices somewhat lower than the previous level. A sanitary ware manufacturer placed 2000 tons of foundry iron. A New Jersey radiator company bought more than 1000 tons of foundry iron. A Delaware river pipemaker ordered 1000 tons of foundry iron. The Pennsylvania railroad closed for about 1000 tons for third quarter.

A few weeks ago a pig iron seller discovered that by shipping Buffalo iron on the New York Central to a New York state point and thence by the Reading he could ship from Buffalo to eastern Pennsylvania points for $4.66 per ton, compared with the regular rate of $4.91. One result was the publication of tariffs by competing carriers to meet this combination rate. These tariffs expire Aug. 31 and it is expected that the New York Central will in the meantime so revise its rates from Buffalo as to restore $4.91. Roads which have met the $4.66 rate will doubtless withdraw their new tariffs.

Buffalo, July 24.—Buffalo district furnaces have piled up a surprising tonnage in small lot transactions, ranging from carloads to 1000 tons. A New York state buyer contracted for 1000 tons of foundry iron during the week, leaving only one inquiry, for 1500 to 2000 tons unfilled. July deliveries have been heavy. It is estimated 6500 tons of iron was shipped from Buffalo by barge canal last week. Prices are steady in this district. Foundry iron is $17 and malleable $17.50. On outside business these prices have been shaded 50 cents to $1.

Cleveland, July 24.—Pig iron buying continues fairly good, and shipments to date this month are equal to or a little better than those of June. Cleveland furnace interests booked 26,000 tons more than in the week preceding. Several good sized tonnages

(*Concluded on Page* 231)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$17.00
Bessemer, del., Pittsburgh	18.76
Basic, valley furnace	15.75 to 16.00
Basic, del., Pittsburgh	17.51 to 17.76
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	18.75 to 19.25
Malleable, valley furnace	17.00
Malleable, del. Pittsburgh	18.76
Malleable, del. Cleveland	18.00
Malleable, Chicago furnace	17.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa	20.75 to 21.25
No. 1 foundry, Chicago furnace	18.00
No. 1X, eastern del., Phila.	21.26 to 21.76
No. 1X, Buffalo furnace	18.50
No. 2 foundry, valley furnace	16.50 to 16.75
No. 2 foundry, del., Pittsburgh	18.26 to 18.51
No. 2 plain, Buffalo furnace	17.00
No. 2 foundry, Chicago, furnace	17.50
No. 2 foundry, Granite City	19.00 to 19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.00
No. 2 plain, del., Phila	20.26 to 20.76
No. 2 plain Virginia furnace	20.00 to 20.50
No. 2 plain, N. J., tidewater	19.28 to 21.76
No. 2 Alabama, Birmingham	15.50
No. 2 Alabama, del. Cincinnati	19.19
No. 2 Tenn., Birmingham base	15.50
No. 2 Tenn., del., Cincinnati	19.19
No. 2 Alabama, del. Chicago	21.51
No. 2 Ala., del. Chicago, river-rail	21.51
No. 2 Alabama, del. Cleveland	21.76
No. 2 Alabama, del. St. Louis	19.92
No. 2X, east, N. J., tidewater	19.78 to 22.26
No. 2X, eastern, del. Phila.	20.76 to 21.26
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	20.91 to 21.41
No. 2X, Virginia furnace	20.50
Gray forge, val., del., Pittsburgh	18.76
Low phos., standard, valley	26.50
Low phos., standard, Phila.	24.26 to 27.29
Low phos. copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.10 to 23.60
No. 2 foundry, del. Montreal	24.50 to 25.00
Malleable, del. Toronto	23.10 to 23.60
Malleable, del. Montreal	24.50 to 25.00
Basic, del. Montreal	23.50 to 24.00

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

Coke

Connellsville Market Quiet—Foundry Deliveries Fairly Regular—Furnace Market Dull

LITTLE activity is developing in the Connellsville coke market to indicate clearly the position of prices. Occasional spot sales are made at $2.60 to $2.75. Shipments to two blast furnaces that were blown out have been suspended, and coke production has been correspondingly reduced. An eastern gas producer placed an order for 2000 to 3000 tons monthly.

Pittsburgh, July 24.—Demand for Connellsville coke continues dull. One operator received an order for 2000 to 3000 tons monthly over a long period for delivery to an eastern gas producer after extended negotations. The price was not disclosed, but it was special because of certain arrangements as to size, and hence the sale is no criterion of the general market. No blast furnace business is pending. A Connellsville operator received suspensions of deliveries to American Radiator Co.'s Tonawanda stack and the Chateauguy Ore & Iron Co.'s Standish stack. Both furnaces have been blown out. A corresponding number of coke ovens are being put out, leaving no surplus coke to depress the market. Spot sales of furnace coke occasionally are made at $2.75, but $2.65 and $2.60 have not disappeared. Large consumers of foundry coke are under contract, taking regular shipments, although some are on a reduced scale. Spot foundry coke sales are made at rare intervals at $4 to $4.50. Some $3.50 and $3.75 prices still are available, although mainly applying to indifferent quality. At the other extreme $4.75 and $4.85 prices still prevail on special brands.

Production of coke in the Connellsville region in the week ended July 14 was 29,660 tons, against 35,100 tons in the preceding week, according to the *Connellsville Courier*.

Boston, July 24.—A fair movement of foundry coke has developed, resulting largely from the fact foundries are buying for immediate needs. Domestic demand has fallen sharply. Prices are unchanged.

New York, July 24.—Foundry coke demand reflects midsummer conditions. The by-product foundry grade continues $8.30, ovens, in northern New Jersey, equivalent to $9 to $9.40, delivered at Newark. By-product coke continues $11, delivered at most New England consuming points. Beehive foundry coke is $4.85, Latrobe, Pa., equivalent to $8.56, delivered at Newark.

Cincinnati, July 24.—Coke market is fairly steady. A local dealer will supply 1500 tons of beehive foundry coke to a consumer in southern Illinois. Shipments of by-product foundry this month probably will be about 5 per cent less than in June. Quotations are unchanged.

St. Louis, July 24.—New demand for metallurgical coke continues quiet, though shipments are holding up to the recent average. The M. W. Warren Coke Co., St. Louis, which for many years has been distributor for by-product coke of the Laclede Gas Light Co., is now also distributing the coke output of the St. Louis Gas & Coke Corp. Both companies are subsidiaries of the Utilities Power & Light Corp.

Birmingham, Ala., July 24.—While all by-product coke ovens in this district are in operation, full production is not being striven for. Demand for foundry coke is fairly good, the base price holding at $5.

Coke Prices

	Beehive Ovens Prices per Net Ton	
Connellsville furnace	$2.60 to	3.00
Connellsville foundry	3.50 to	4.50
New River foundry	6.50 to	7.50
New River furnace		6.00
Wise county foundry	5.00 to	5.25
Wise county furnace	4.00 to	4.75
By-Product Foundry		
Newark, N. J., del.	9.00 to	9.40
Chicago, ovens		8.00
New England, del.		11.00
St. Louis, del.		9.00
Birmingham		5.00
Indianapolis, del.		8.25
Ashland, Ky.		7.00
Portsmouth, O.		7.00
Detroit, ovens		8.50
Buffalo, ovens		9.00

Is Made Agent for Coke

The Corrigan, McKinney Steel Co., Cleveland, has appointed Hickman, Williams & Co., with offices in the Union Trust building, Cleveland, its agent for the sale of its Cor-Kin domestic by-product coke.

Ferroalloys

July Shipments Lower Than June—Still Using First Half Stocks

Pittsburgh, July 24.—While the majority of ferroalloy users are covered by contracts for last half, few, if any, have started to draw on them, as they still have considerable material in stock. Consumption keeps up fairly well, although none of the domestic producers believes July shipments will approach those of June. A few consumers remain to be signed up for last half. The price is steady at $105, seaboard. Shipments are fair against 50 per cent ferrosilicon contracts. Spiegeleisen shipments harmonize closely with consuming rates, stocks being no larger than at any time all year. The price named in spot 19 to 21 per cent material is unchanged at $33. Contract customers pay less.

Chicago, July 24.—Specifications for ferromanganese and ferrosilicon are declining. Most users now are covered on ferromanganese for last half. The price is maintained here at $105, seaboard. No sales are reported in spiegeleisen, and the spot price of $33, eastern furnace, for spot carloads is nominal.

Canadian Iron Output Up, Steel Off in June

Toronto, Ont., July 24.—Production of pig iron in Canada in June totaled 97,379 long tons, compared with 87,811 tons in May and 69,437 tons in June, 1927. Production of basic iron increased to 69,040 tons from 68,945 tons in May, and of foundry to 25,968 tons from 7667 tons in May and of malleable iron from 11,199 tons in May to 2371 tons in June.

For the first half of 1928 cumulative production of pig iron was 468,013 long tons, compared with 403,713 tons, in the corresponding period of last year. This years' output included 355,802 tons of basic iron 88,076 tons of foundry and 24,135 tons of malleable iron.

Production of ferroalloys in June totaled 4157 tons against 4049 tons in May.

Tonnage of steel ingots and castings for June amounted to 116,530 tons, against 117,655 tons in May and 59,940 tons in June, 1927.

For the six months ended with June, production of ingots and castings amounted to 648,338 tons, 33 per cent over the 487,310 tons in the first half of 1927.

The American Chemical society will hold its annual fall meeting at Swampscott, Mass., Sept. 10-15. Headquarters will be at the New Ocean House.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace	33.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	96.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Scrap

Scrap Still Spotty but Softness Less Pronounced—Advances at Chicago

MELTING steel continues $13.50 to $14 at Pittsburgh, but tonnage demand might bring more. A large order for steel at Chicago was priced at $13. Car axles and arch bars and transoms are stronger in that market. Steel is down to $13 at Cleveland. Prices are easier at Boston.

Chicago, July 24.—Filling of old orders by dealers and consumer-buying generally higher than operations of steel producing and casting plants indicate combine to arrest the recent downward movement in scrap prices. Heavy melting steel and a few other grades are stronger. A leading consumer has purchased melting steel at $13, and dealers buy melting steel for Gary furnaces at $12.75. Most dealers pay $12.75. Melting steel on two railroad lists—Chicago & Alton and Rock Island—sold at a minimum of $12.90, gross, on tracks. Iron car axles are 50 cents higher, partly because all incoming supplies are handled here for shipment outside the district. Iron arch bars and transoms also are stronger. Machine shop turnings are off 25 cents, a consumer purchase of 1000 tons having been made at $6.50, gross. Two carloads of low phos punchings were sold at $15, gross, up 50 cents.

New York, July 24.—Excessively hot weather the past several days has slowed up the movement of scrap. In a number of instances plants have been closed for one and two days. This has affected not only consump-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL	
Birmingham	$10.25 to 10.50
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	13.75 to 14.25
Buffalo, No. 2	12.00 to 12.50
Chicago	12.50 to 13.00
Cincinnati, deal.	10.75 to 11.25
Cleveland, No. 1	13.00
Cleveland, No. 2	12.25 to 12.50
Detroit, No. 1	10.25 to 10.75
Eastern Pa.	12.50 to 13.00
Eastern Pa., No. 2	10.50 to 11.00
Bethlehem delivery	12.50 to 13.00
N. Y., deal., R. R.	9.25 to 9.85
N. Y. deal., yd.	6.00 to 6.50
Pittsburgh, No. 1	13.50 to 14.00
St. Louis, No. 1	12.00 to 12.50
St. Louis, No. 2	10.50 to 11.00
Valleys, No. 1	14.00 to 14.25
COMPRESSED SHEETS	
Buffalo	12.00 to 12.50
Chicago	11.00 to 11.50
Cleveland	12.00 to 12.50
Detroit	9.75 to 10.00
Pittsburgh	13.50 to 14.00
Valleys	13.25 to 13.50
E. Pa. new mat.	11.00 to 11.50
BUNDLED SHEETS	
Buffalo	8.25 to 8.75
Cincinnati, deal.	9.00 to 9.50
Cleveland	11.50 to 12.00
Eastern Pa.	9.50 to 10.00
Pittsburgh	12.50 to 13.00
St. Louis	7.75 to 8.25
SHEET CLIPPINGS, LOOSE	
Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Detroit	7.00 to 7.50
St. Louis	7.75 to 8.25
STEEL RAILS, SHORT	
Birmingham	11.50 to 12.00
Boston	7.25 to 8.00
Buffalo	15.00 to 15.50
Chicago	15.00 to 15.50
Cincinnati, deal.	15.75 to 16.25
Detroit	11.00 to 11.50
St. Louis	15.00 to 15.50
STOVE PLATE	
Birmingham	13.50 to 14.50
Boston, consumers	10.00
Buffalo	13.00 to 13.50
Chicago, net	11.50 to 12.00
Cinn., deal., net	8.00 to 8.50
Cleveland	12.00 to 12.50
Detroit, net	10.75 to 11.25
Eastern Pa.	11.00
N. Y., deal., mill.	6.75 to 7.00
Pittsburgh	11.50 to 12.00
St. Louis	11.00 to 11.50
SHOVELING STEEL	
Chicago	12.50 to 13.00
Pittsburgh	9.75 to 10.00
St. Louis	10.50 to 11.00
KNUCKLES, COUPLERS SPRINGS	
Buffalo	15.00 to 15.50
Chicago	13.75 to 14.25
Eastern Pa.	15.50 to 16.00
Pittsburgh	15.00 to 15.50
St. Louis	12.00 to 12.50

LOW PHOSPHORUS	
Buffalo, billet and bloom crops	16.00 to 16.50
Cincinnati, deal.	12.25 to 13.25
Eastern Pa.	17.50 to 18.50
Pitts. billet and bloom crops	18.50 to 19.00
Cleve. billet and bloom crops	17.00 to 17.50
FROGS, SWITCHES, GUARDS	
Chicago	13.50 to 13.75
St. Louis	11.75 to 12.25
ANGLE BARS—STEEL	
Buffalo	14.00 to 14.50
Chicago	14.50 to 15.00
St. Louis	11.75 to 12.25

Iron Mill Scrap

RAILROAD WROUGHT	
Birmingham	9.50 to 10.00
Boston, dealers	8.50 to 9.00
Buffalo, No. 1	12.00 to 12.50
Buffalo, No. 2	14.00 to 14.50
Chicago, No. 1	12.30 to 12.90
Chicago, No. 2	12.50 to 13.00
Cinn., No. 1 deal.	9.75 to 10.25
Eastern Pa.	15.00 to 15.50
N. Y., No. 1 deal.	11.00 to 11.50
Pittsburgh, No. 1	10.50 to 11.00
Pittsburgh, No. 2	13.50 to 14.00
St Louis, No 1	9.00 to 9.50
St. Louis, No. 2	11.00 to 11.50
WROUGHT PIPE	
Boston, dealers	7.00 to 7.50
Eastern Pa.	12.00 to 12.50
Buffalo	12.00 to 12.50
New York, deal.	8.00 to 8.50
YARD WROUGHT	
Boston	8.00 to 8.50
Eastern Pa.	14.50 to 15.00
BUSHELING	
Buffalo	12.00 to 12.50
Chicago, No. 1	11.00 to 11.50
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	10.00 to 10.50
Cinn., No. 2	5.50 to 6.00
Cleveland, No. 2	9.00 to 9.25
Detroit, No. 1	9.75 to 10.00
St. Louis, No. 1	9.00 to 9.50
Detroit, mixed	7.25 to 7.50
MACHINE SHOP TURNINGS	
Birmingham	8.00 to 9.00
Boston	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	6.00 to 6.50
Cincinnati, deal.	6.75 to 7.25
Cleveland	7.00 to 7.50
Detroit	5.00 to 5.25
Eastern Pa.	10.00
New York, deal.	6.00 to 6.50
Pittsburgh	8.75 to 9.00
St. Louis	7.00 to 7.50
MIXED BORINGS, TURNINGS For blast furnace use	
Boston, dealers	5.00 to 5.50
Buffalo	9.00 to 9.50
Cincinnati, deal.	7.75 to 8.00
Cleveland	9.00 to 9.25
Detroit	7.00 to 7.50
Eastern Pa.	9.50 to 10.00
New York, deal.	5.75 to 6.25
Pittsburgh	9.75 to 10.00

CAST IRON BORINGS	
Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 9.00
Boston, chem.	9.50 to 10.00
Boston, dealers	5.25 to 5.50
Buffalo	9.00 to 9.50
Chicago	9.00 to 9.50
Cincinnati, deal.	7.25 to 7.75
Cleveland	9.00 to 9.25
Detroit	7.00 to 7.25
Eastern Pa.	10.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	5.75 to 6.25
Pittsburgh	9.75 to 10.00
St. Louis	8.25 to 8.75
Valleys	13.50
PIPES AND FLUES	
Chicago, net	8.50 to 9.00
Cincinnati, deal.	7.00 to 7.50
St. Louis	9.00 to 9.50
RAILROAD GRATE BARS	
Buffalo	11.25 to 11.75
Chicago, net	11.25 to 11.75
Cincinnati	8.50 to 9.00
Eastern Pa.	11.50
New York, deal.	8.00 to 8.50
St. Louis	11.00 to 11.50
FORGE FLASHINGS	
Boston, dealers	6.50 to 7.00
Buffalo	11.50 to 12.00
Chicago	9.00 to 9.50
Cleve., over 10 in.	11.50 to 11.75
Detroit	9.00 to 9.50
Pittsburgh	11.50 to 12.00
FORGE SCRAP	
Boston, deal	5.50 to 6.00
Chicago	15.50 to 16.00
Eastern Pa.	10.50 to 11.00
ARCH BARS AND TRANSOMS	
Chicago, net	19.75 to 20.25
St. Louis	18.25 to 18.75

Iron, Steel Works Scrap

AXLE TURNINGS	
Boston, deal	6.75 to 7.00
Buffalo	11.50 to 12.00
Chicago	9.75 to 10.25
Cleveland	12.00 to 12.25
Eastern Pa.	10.50 to 11.00
Pittsburgh	12.00 to 12.50
St. Louis	9.50 to 10.00
STEEL CAR AXLES	
Birmingham	17.00 to 17.50
Boston, ship. point	15.50 to 16.00
Buffalo	15.75 to 16.25
Chicago	17.65 to 18.20
Cleveland	16.00 to 16.50
Eastern Pa.	19.00 to 20.00
Pittsburgh	17.50 to 18.00
St. Louis	18.00 to 18.50
SHAFTING	
Boston, ship. point	11.50 to 12.00
Chicago	17.35 to 17.90
Eastern Pa.	16.50 to 17.00
New York, deal.	13.00 to 13.50
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS	
Birmingham, iron	12.00 to 12.50
Boston, con.	14.00 to 14.50
Buffalo, iron	12.25 to 12.75
Buffalo, steel	15.00 to 15.50
Chicago, iron	13.00 to 13.50
Chi., rolled steel	15.50 to 16.00
Cincinnati	11.00 to 11.50
Eastern Pa.	16.00
N. Y., iron, deal.	11.00 to 11.50
Pittsburgh, iron	14.00 to 14.50
Pittsburgh, steel	15.00 to 15.50
St. Louis, iron	13.00 to 13.50
St. Louis steel	13.00 to 13.50
NO. 1 CAST SCRAP	
Birmingham, cup.	14.00 to 14.50
Boston	14.00 to 14.50
Boston, textile	13.25 to 13.50
Buffalo	14.00 to 14.50
Chicago, machiny.	15.95 to 16.50
Chicago, railroad	14.30 to 14.85
Chicago, agri.	14.00 to 14.55
Cincinnati, mach. cupolas, net deal.	14.50 to 15.00
Cleveland, cupola	15.50 to 16.50
Detroit, net	12.25 to 12.75
Eastern Pa. cupola	16.00
N. Y., cup., deal.	13.00 to 13.50
Pittsburgh, cupola	14.00 to 14.50
San Fran., del.	20.00 to 21.00
Seattle	14.50 to 15.00
St. Louis, railroad	13.00 to 13.50
St. Louis, agri.	13.00 to 13.50
St. Louis, machy.	13.00 to 13.50
Valleys	16.50 to 17.00
HEAVY CAST	
Boston	10.50 to 11.00
Buffalo, breakable	11.50 to 12.00
Cleve., breakable	12.25 to 12.50
Detroit, auto., net	20.00 to 21.00
Detroit mach., net	12.75 to 13.25
Eastern Pa.	14.50 to 15.00
New York, deal.	11.50 to 12.00
Pittsburgh	11.50 to 12.00
MALLEABLE	
Boston, railroad	13.50 to 14.50
Buffalo	15.00 to 15.50
Chicago, agri.	11.75 to 12.25
Chicago, railroad	12.50 to 13.00
Cinn., R. R., deal.	11.50 to 12.00
Cinn., agri., deal.	10.50 to 11.00
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	15.00 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, rail.	13.75 to 14.00
St. Louis, agri.	11.50 to 12.00
St. Louis, rail.	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING 5 feet and over	
Birmingham	11.50 to 12.00
Boston, dealers	9.50 to 10.00
Buffalo	13.50 to 14.00
Chicago	14.50 to 15.00
Eastern Pa.	14.50 to 15.00
New York	11.00 to 11.50
Pittsburgh district	16.00 to 16.50
St. Louis	13.00 to 13.50
LOCOMOTIVE TIRES	
Chicago, No. 1	13.50 to 14.00
Chicago, cut	15.50 to 16.00
St. Louis, No. 1	11.75 to 12.25
LOW PHOS. PUNCHINGS	
Chicago	14.50 to 15.00
Pittsburgh	16.00 to 16.50

tion of scrap but production as well.

Boston, July 24.—Scrap prices generally continue to show an easier trend. Scrap rails, shafting, cast iron borings for steel mill use and railroad wrought all were off slightly. On other materials, inside prices are more often obtained than those listed. Business is dull. Another boat will sail for Danzig shortly, for which 4000 tons is being prepared. For No. 1 steel $9.25 per ton on dock is being paid and $8.50 for No. 2. Some scrap rail is being figured in the next consignment for this Danzig export. This brings the No. 1 steel price.

Pittsburgh, July 24.—Scrap sales are intermittent and in almost every case consist of small lots. Some blast furnace material was sold to a nearby steelmaker at $9.75. Another buyer paid $10 and while one purchase carried a figure slightly above $10, $9.75 to $10 is considered the quotable market. Small sales of steel specialties are made at $15 to $15.50. A dealer sold a small lot at the maximum and was able to cover at the minimum. Heavy melting steel still is quotable at $13.50 to $14. It is doubted if suitable supplies would be found available at even the maximum should any buyer of large tonnage come into the market. Westinghouse Electric & Mfg. Co. closed bids July 25 on its August scrap tonnage.

Pennsylvania railroad closes bids Aug. 1 on its main list of 41,180 tons of scrap and its auxiliary list of 3985 tons.

Cleveland, July 24.—Further weakness is apparent in the local iron and steel scrap market. Heavy melting steel is quoted on a flat $13 basis. Activity consists chiefly in covering on old contracts, new business being light. Adsence of demand for hydraulic compressed sheets has weakened this grade, $12 to $12.50 being the current price. Shipments generally show little change, a fair rate of consumption being offset by consumers' disinclination to buy ahead.

Cincinnati, July 24.—With substantial stocks of material on hand to meet current needs, scrap buyers have virtually withdrawn from the market, so that sales in the past week have been meager. Blast furnace and foundry grade prices are extremely weak, but heavy melting steel, on the other hand, is holding fairly well.

St. Louis July 24.—Typical summer dullness prevails in scrap iron and steel. While few specific changes have been made in dealers lists, the trend of prices is downward, and many quotations are nominal. Buying by mills and foundries is light, and confined to material for immediate use. While there doubtless is considerable scrap to be bought for rest of the quarter, inquiries are scant. Fourth quarter inquiry is entirely absent. Stocks in the principal yards are somewhat smaller than normal.

Birmingham, Ala., July 24.—A slight increase in activity in iron and steel scrap is attributed to efforts of dealers to clean up contracts. Prices are low, with few signs of nearby strengthening. Heavy melting steel is plentiful and unchanged at $10.25 to $10.50, in instances delivered at these prices.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	5.00
Turnings	5.00
Heavy melting steel	7.00

TORONTO

Steel axles	13.50 to 14.00
Iron axles	15.50 to 16.00
Heavy melting steel	8.00 to 8.50
Turnings	6.50 to 7.00
No. 1 mach. cast (net)	14.50 to 15.00
Malleable, (net)	12.50 to 13.00
Stove plate (net)	8.50 to 9.00

Buffalo, July 24.—Two tonnage sales of No. 1 heavy melting steel were made here in the past week. One, reported to have involved approximately 20,000 tons, was closed at a price variously reported as $13.75 to $14, while another to a consumer with high specifications is reported closed at $14.25. The price in each instance is 25 to 50 cents lower than last paid by these buyers. Some low offers have been made for ordinary heavy melting steel. Turnings show pronounced weakness.

Philadelphia, July 24.—Bethlehem Steel Co. has purchased several thousand tons of heavy melting steel for Sparrows Point, Md., at $12.50, delivered. This is the first purchase for Sparrows Point in a long time. It reveals the current market as not over $12.50 to $13, delivered.

Toronto, Ont., July 24.—Business in the Canadian iron and steel scrap markets remained on practically the same level as that of the previous week. In the Montreal district there is good demand for wrought iron and steel axles and although dealers are offering $22 and $20, gross, demand exceeds supply. Demand for heavy melting steel and turnings in Toronto and Montreal districts is limited, but shipments are being made against contract that are responsible for a good movement between dealers and consumers. Foundries throughout Ontario and Quebec are taking in supplies in small tonnages of machinery cast and stove plate.

Semifinished

Pittsburgh Market Is Stronger —$33, Valley, Quoted on Sheet Bars for Fourth Quarter

SHEET bars, billets and slabs are firmer in the Pittsburgh district, where $33 is being quoted on a current inquiry for 6000 tons of high-carbon, high-manganese billets. Though sheet bars still are offered at $32, the tendency is to quote higher figures. Most of the third quarter requirements have been covered. A leading valley mill has announced a price of $33 on sheet bars.

SEMIFINISHED STEEL PRICES, PAGE 216

Pittsburgh, July 24.—Sellers of semifinished steel have strengthened their price policy. On an inquiry for 6000 tons of high-carbon, high-manganese billets a minimum base of $33 was quoted. A nearby user inquired for that tonnage for its quarter's requirements but has not placed the contract, and is endeavoring to obtain them at $32. This order probably will be placed this week, and will afford a real test of the billet and slab market. On 2 x 8-inch slabs the same base figure is named, although sheet bars here and there still are available at $32. Forging billet specifications on $38 contracts are light. Wire rods are moving at $42, being fairly active as regards cold bar finishers and nut, bolt and rivet manufacturers. Skelp is fairly active, in interchange between plate and pipe mill departments of integrated steel mills. Outside shipments are being made at about the usual rate for July. The minimum quoted for remainder of third quarter is 1.90c, although shipments against old contracts are billed at less.

Youngstown, O., July 24.—Youngstown Sheet & Tube Co. has announced $33, Youngstown, as its price on fourth quarter tonnages of sheet bars. Specifications for this product received from regular sources involve slightly larger tonnages. Shipments of semifinished material show no decline. Producers quote $32, Youngstown, on sheet bars and $33, Youngstown, on 4 x 4-inch billets.

Philadelphia, July 24.—Several hundred tons of billets were sold in the past week at $38, base, Pittsburgh, for forging quality and $32 to $33 for rerollers.

Tin Oxide Output Less

Production of tin oxide in 1927 was 4,143,579 pounds valued at $2,600,299 compared with 4,788,344 pounds valued at $2,904,882 in 1925, the last preceding census year, states the department of commerce.

An unusually large drop hammer is being installed at the plant of Wilcox, Crittenden & Co. Inc., Middletown, Conn., manufacturers of marine hardware. This hammer weighs 40 tons and has a base which is a solid casting weighing 22 tons.

Bars

July Shipments Best for the Month in Several Years—Current Prices Steady

JULY shipments of steel bars are at a better rate than June, according to reports from Pittsburgh. The tonnage this month, it is estimated, will be larger than for any July in several years past. Railroad releases and a good run of miscellaneous business are keeping mills in the Chicago district well occupied. Fourth quarter inquiries have not yet developed a test of 2.00c.

BAR PRICES, PAGE 215

Chicago, July 24.—Bar mill products held their position in the week's sales and specifications much better than did plates and shapes. The volume was approximately equal to a week ago. For bars, plates and shapes as a whole, sales and specifications showed a drop, but specifications were nearly parallel to shipments. Bar business was stimulated by some good railroad releases against quarterly requirements, and likewise good ordering of bolt, nut and rivet steel and bar stocks for cold drawing and finishing, which had been allowed to shrink for midyear inventories. In general, bar users are seeking to build up normal stocks. Farm equipment business, especially in tractor lines, is encouraging, while makers of automotive parts are consistent buyers. Mills report good contracting for third quarter during the week, which is fully up to a year ago. Contracting is on the basis of 2.00c, Chicago, except for the usual tonnage differentials to preferred buyers. Producers are making efforts to hold the 2.00c price for the general run of business and state that the bulk of contract bookings for third quarter are at that figure. A 2.10c, Chicago, quotation for fourth quarter is announced.

Philadelphia, July 24.—Steel bar demand has fallen off, but the July total so far continues well above the same period in June. Prices range from 1.85c to 1.90c, base, Pittsburgh.

Pittsburgh, July 24.—Diversified buyers of hot rolled merchant steel bars are more active this month than in June, and more tonnage is being shipped out than in any July in several years. All mills are receiving good specifications and day-to-day orders are increasing each week. While some specifications apply against 1.85c contract, all mills now have a minimum of 1.90c for remainder of third quarter. While some independents have done nothing regarding fourth quarter prices, several have nominally adopted the Carnegie Steel Co.'s 2.00c figure. The leading interest has booked no contracts for the final quarter but indicates that price will govern.

Cleveland, July 24.—Soft steel bar orders of most sellers, which were ahead of the June rate up to a few days ago, are now falling slightly behind and the market seems to be lapsing slowly into midsummer dullness. Even so, demand is seasonally high. Auto requirements are the mainstay of the market. Although 1.85c, Cleveland or Pittsburgh mill, has not disappeared for tonnage buyers the trend is toward a 1.90c market, a price more users are paying.

Many Exhibitors Engage Power Show Space

All indications point to a record attendance of visitors and exhibitors at the seventh national exposition of power and mechanical engineering to be held in Grand Central Palace, New York, Dec. 3-8. The show will be coincident with the annual meeting of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers. Space reservations already made greatly exceed those of any of the past seven years at the same advance date. Four floors of exhibit space provide ample opportunity for manufacturers whose product has merit and will meet the needs of the engineering industry and stand the inspection of buyers seeking materials, machines, instruments of precision and numerous items used in industry, to display their products to the engineering world. Visitors to the exhibition will receive a complete cross section of the achievements of the mechanical engineering industries and the developments which have been made in those industries during the past year.

Will Not Abandon Stacks

Reports that the Youngstown Sheet & Tube Co. plans to abandon its two blast furnaces and by-product coke ovens at Mayville, Wis., one stack at its South Chicago division and the Tod stack at its Brier Hill plant at Youngstown are denied by officials of the company. While these particular units are at present inactive, it is stated they will be kept in readiness for blowing in when market conditions warrant.

Plates

Volume of Business Tapers Slightly—Good Tonnages in Prospect in Pittsburgh District

LARGE consumers of plates still have available a price of 1.85c, but the trend toward 1.90c on ordinary business has gathered strength. Better prospects have developed in the market at Pittsburgh, especially for barges. A Pittsburgh fabricator has booked around 4000 tons for tanks for export. Demand at Chicago has subsided, and mills in that district are operating at 70 per cent.

PLATE PRICES, PAGE 215

New York, July 24.—The stronger tendency in plates appears to have resulted already in an increase in the billing price by mills. One mill reports that on shipments at present in this territory, it is getting an average of at least $1 a ton higher than two months ago. More customers than ever in the recollection of the trade here are buying from hand to mouth. Indications are that at least half of the users who were under contract for the second quarter now are buying plates as they need them. The current range of prices is 2.00c to 2.05c, base, Coatesville, although 1.95c has not disappeared on good orders for tank plates.

New York, July 24.—A fair tonnage of steel plates is involved in a penstock which will be erected by the Penstock Construction Co., Sharon, Pa., in connection with the Moshier Creek power development of the New York Power Corp. The water department of the city of New York, which recently placed an order for a large pipe line with the Penstock company for the borough of Queens, is expected to be ready in about a month to advertise for bids for a large extension to that line.

Cleveland, July 24.—The general manufacturing trade maintains fair demand for plates, but those users normally taking tonnages are slack. Shipments into this district will fall below June but will top last July. The 1.85c, Pittsburgh, price still is obtainable to large buyers, with 1.90c quoted more frequently.

Chicago, July 24.—Plate mill operations are declining slightly and now are about 70 per cent, against more than 75 per cent at the beginning of the month. Railroads have

been taking fairly liberal tonnages for their own car repair and maintenance work, on orders entered at the start of third quarter. Oil tankage in the past week totaled about 1000 tons, and no definite inquiries are out. Humble Oil & Refining Co. is expected to inquire for material to add 20,000 to 25,000-barrel capacity to its plant at Port Ingleside, Tex. Mills are receiving specifications against the Louisiana-Kansas City gas line from a Milwaukee fabricator. A fair tonnage of plates was booked in third quarter contracting on the basis of 2.00c, Chicago. Car building shops and oil tank fabricators get preferred industry differentials.

Philadelphia, July 24.—Plate specifications continue good. Eastern mills are operating at 35 to 65 per cent. Current prices range from 1.95c to 2.05c, base, Coatesville, although the usual minimum on new business is 2.00c.

Pittsburgh, July 24.—An encouraging amount of plate work is coming out, including numerous barge, boat, oil tank, penstock and pipe line projects. A program of 50 ships for the government's merchant marine will involve a large plate tonnage, and a number of barges for Mississippi river will develop considerable work for mills here. Riter-Conley Co. booked a number of tanks for export, involving 4500 tons. Biggs Boiler Works Co. has booked a 60-inch pipe line for the Boston metropolitan district, requiring 4000 tons. Petroleum Iron Works booked a penstock, with 200 tons, and Dravo Contracting Co. has received some repeat orders on barges. Independent plate producers have followed the lead of Carnegie Steel Co. in announcing a 2.00c price for fourth quarter; 1.90c is the present asking price.

CONTRACTS PLACED

4500 tons, oil storage tank for export, to Riter-Conley Co.
4000 tons, 60-inch electric welded pipe line for Malden, Mass., to Biggs Boiler Works Co., Akron, O.
750 tons, six steel cargo box barges, Union Barge Line Corp., to American Bridge Co.
500 tons, four additional 135 x 27 x 8-foot barges for Keystone Sand & Supply Co., Pittsburgh, to Dravo Contracting Co.
200 tons, 600-foot penstock 10 feet in diameter, Moshier Creek development, New York state, awarded by New York Power Corp. to Petroleum Iron Works, Sharon, Pa.
200 tons, two barges for Basic Products Co., Kenova, W. Va. to Dravo Contracting Co.
200 tons, two derrick boat hulls, Atlantic, Gulf & Pacific Co. to Dravo Contracting Co. for fabrication at Wilmington, Del.

CONTRACTS PENDING

3000 tons, ten 175 x 26 x 11-foot coal barges, three 110 x 24 x 8-foot barges, and a 30-ton derrick boat, Union Barge Line Corp., Pittsburgh; bids being taken.

Crane Buying Landon Co.

Crane Co., Chicago, is reported completing negotiations for purchase of the Landon Radiator Co., North Tonawanda, N. Y. Formal announcement may come this week.

Pipe

Much Line Pipe Continues in Prospect with Mills Well Booked —Cast Prices Remaining Stable

MILLS continue well booked on recent line pipe orders. Contemplated line pipe business indicates heavy future contracting. Merchant pipe demand from jobbers is seasonally good. Cast pipe contracting has diminished with the development of summer. Strength in prices continues well maintained, a recent opening of bids on 3000 tons for Milwaukee show firmness.

PIPE PRICES, PAGE 216

Chicago, July 24.—All bids for 3000 tons of pipe for Milwaukee were slightly under $35, base, Birmingham, but this is not regarded as a factor of weakness in quotations here at $35 to $37, base, for 6 to 24-inch. In recent years, differentials have been consistently quoted for attractive Milwaukee business, due largely to potential competition of foreign pipemakers. The concession to Milwaukee in the latest offering was much less than is customary, as $1 to $2 a ton has been common. Bids on 12-inch pipe by the three bidders—James B. Clow & Sons, United States Cast Iron Pipe & Foundry Co., and American Cast Iron Pipe Co.—were identical at $42.50, delivered. Several lots of pipe through contractors have just been placed at the base price of $37. No sales are reported under $35 when contractors' purchases are involved. Contract business continues moderately active.

The Sinclair Pipe Line Co., jointly owned by Standard Oil Co. of Indiana and Sinclair Consolidated Oil Corp., is planning a $15,000,000 pipe line construction program in enlarging its line facilities from Cushing, Okla., to Chicago district.

Boston, July 24.—While a dull market continues from municipalities for pipe, private business is being maintained at a most satisfactory rate. From these sources good tonnage continues to producers' books with prospects good that this line will hold strong through the rest of the summer.

New York, July 24.—Cast pipe demand appears the slowest in several weeks. This is true not only of municipal, but private inquiry, and prices generally are soft. In some respects there is not enough business to afford a real test, yet on such tonnages as are being placed prices are low.

Pittsburgh, July 24.—The report here that the Standard Oil Co. of New Jersey had placed its order for approximately 150,000 tons of pipe for a 500-mile line for mid-western installation is erroneous. Several other pipe line projects, both gas and oil, have not yet reached the definite inquiry stage but are expected to do so within the next few weeks. Miscellaneous pipe business is considered fair, jobbers ordering as needed. Some makers claim business is more than fair for this time of the year, building programs being well sustained throughout the country. Prices are firm and operations average 60 to 70 per cent this month, against a 50 to 60 per cent rate last month.

Seamless tubes for automotive and sundry other uses are in fairly active demand. One producer increased its steel releases causing one more open-hearth furnace to be lighted.

Cleveland, July 24.—Demand for merchant pipe from Cleveland district jobbers is improving. Sales of mills selling tubular products into this territory were slightly heavier in the past week. The building industry is more encouraged, being reflected in heavier jobber purchases.

Birmingham, Ala., July 24.—Shipments of cast iron pressure pipe are heavy. Production is steady around 80 per cent of capacity. Centrifugal pipe still is predominating. Prices were unchanged during the week.

CONTRACTS PLACED

855 tons, 12-inch class 350, Los Angeles, to American Cast Iron Pipe Co.
844 tons, 8-inch class 350, Los Angeles, to Pacific States Cast Iron Pipe Co.
660 tons, pipe for Seattle, to United States Cast Iron Pipe & Foundry Co.
422 tons, 8-inch class 350, Los Angeles, to Jones, Lyman & Co.
294 tons, 4 to 12-inch class B, improvement of streets in Huntington Park, California, to C. H. Merrill of Santa Monica.
250 tons, 6 and 8-inch pipe for Lynn, Mass., to Warren Foundry & Pipe Co.
100 tons, 12-inch, Lowell, Mass., to United States Cast Iron Pipe & Foundry Co., with a reported price of $38.90, delivered.

CONTRACTS PENDING

3000 tons, 6 to 16-inch pipe for Milwaukee; United States Cast Iron Pipe & Foundry Co., low on 6-inch at $41.50, delivered; James B. Clow & Sons, low on 8-inch, $42.24, delivered; American Cast Iron Pipe Co., low on 16-inch, $42.25, delivered; American Cast Iron Pipe Co., low on 16-inch, $42.25, delivered; all three bidders submit identical bids of $42.50 on 12-inch.
2000 tons, 6, 8, and 12-inch pipe for St. Clair Shores, Mich.; bids July 24.
2000 tons, cast iron pipe for Milwaukee; low bidders are: 750 tons of 6-in., United States Cast Iron Pipe & Foundry Co. low at $41.50 per ton. All other bids tied at $42.50. 950 tons of 8-in., Glamorgan Foundry low at $42.25; other bids $42.50 to $42.80. 75 tons of 12-inch., Jones & Clow & Lons, Lynchburg Foundry Co., United States National Cast Iron Pipe Co., Glamorgan, all $42.50;

American Cast Iron Pipe Co., $42.80. 225 tons of 16-inch, American low at $42.25; all others $42.50.
550 tons, Monterey Water Co., Monterey, Calif.; bids soon.
100 tons, 12-inch pipe for Lowell, Mass.; bids in.

Tin Plate

Mills Have Large Backlogs—Order Placed for 100,000 Base Boxes

TIN PLATE PRICES, PAGE 215

Pittsburgh, July 24.—Tin plate mill operations average 95 per cent, although the output does not average that high because heat retards the activity of the mill crews. Various expedients are resorted to, to make up this deficiency, in some cases 17 turns instead of 16 weekly being possible on certain units. American Sheet & Tin Plate Co. is on a 96 per cent basis, which means practically 100 per cent with elimination of eight obsolete mills at its Pittsburgh works. The leading interest has enough busines on hand to run as at present until Sept. 30. Canmakers believe 1928 will be the best year of history for tin plate consumption and are preparing accordingly. One placed an extra order last week for 100,000 base boxes for delivery prior to beginning of fourth quarter. All crop reports are favorable. The price is unchanged at $5.25.

Republic Reports Gain in Earnings

Net income of the Republic Iron & Steel Co. for the three months ended June 30 amounted to $1,053,855, after charges and federal taxes, compared with $487,331 in the first quarter and $998,115 in the 1927 period. Trumbull Steel Co. recently absorbed by Republic, earned $37,832 in the 1927 second quarter.

Net for six months amounted to $1,541,186,or $1.12 a share, against $2,032,537, or $3.86 a share a year ago.

The regular quarterly dividends of $1 on the common and $1.75 on the preferred were declared.

Field Work on Tungsten Tariff Probe on

Washington, July 24.—Domestic field work will be undertaken by experts of the tariff commission next week in connection with the tungsten investigation being made by the commission at the request of congress. Foreign costs will be taken from invoices at the custom houses of the country.

The advisory board of the commission has just completed its work in review of the report on fluorspar and it is expected that it will be sent in a few days to the commission. It is doubtful if this report will be sent to the President for action until the fall.

Sheets

Market Continues Active, with Steady Prices—All Lines Taking Good Size Tonnages

ALL lines of sheet consumption continue fairly active, as reflected by specifications. Business generally is above the average for midsummer; demand from the automotive industry is especially good. Users have placed substantial new orders for third quarter with valley mills, and operations in that district have stepped up to 91 per cent. Prices are unchanged.

SHEET PRICES, PAGE 215

Pittsburgh, July 24.—Sheet buyers in practically every consuming line are at least normally busy for this season, and a few are abnormally active. Specifications are liberal. Automotive consumers specified several lots involving large tonnages in the past week. Sheet mills report better operating schedules than in any July in several years. American Sheet & Tin Plate Co. last week had more specifications than in any one week of the year with the exception of the third week in March. It operated 74 per cent of its sheet-making capacity, but has 81 per cent scheduled for this week. Orders from automotive and allied industries ran up a new high total; car building and car repairing are requiring fairly large tonnages; the electrical industry is ordering increasingly large tonnages; agricultural implement manufacturers who had a setback in June are again coming out with attractive orders; and various other lines, including building trades, show increased attention. Some orders for galvanized again carry the 3.50c price, while 4.00c is firm on full finished. Makers of blue annealed sheets are shut out of Detroit territory in most cases because strip manufacturers can bid successfully on narrow material demanded there, because of their lower base and lower pickling extras. Black sheet makers continue to receive a fair measure of business at 2.70c.

New York, July 24.—Most sheet sellers report typical summer conditions, with slow bookings. On the other hand, two large producers say their business in this territory during the past week has been ahead of the average of the past month and also their orders so far in July are in excess of the rate a year ago. Galvanized sheets usually are 3.40c, base, Pittsburgh. On blue annealed the usual price is 2.00c and 2.10c is done mainly for small tonnages. While 2.60c is done on attractive tonnages of black sheets the usual minimum is 2.65c. On furniture stock prices are 2.70c and 2.75c.

Youngstown, O., July 24.—Sheet consumption is well maintained. Orders are not sufficient to permit scheduling mills far in advance although accumulated tonnage by the latter part of each week assures hot mill crews a fair number of turns. Mill operation is at 91 per cent, an increase of two mills over the week. Black sheets are steady at 2.65c on quantity business. Blue annealed is quoted at 2.00c. On galvanized 3.50c is minimum. High-grade tonnage continues firm at 4.00c. Specifications for this grade foreshadow no interruption in mill schedules for the next few weeks. High-grade mills at present are working 100 per cent. Production, however, has been slowed down somewhat due to midsummer.

Philadelphia, July 24.—Sheet demand is maintained in fair volume. There is some talk of an advance of $2 a ton on fourth quarter tonnage, but so far prices are unchanged. Black sheets are $2.60 to $2.75, base, Pittsburgh, with $2.70 and $2.75 obtained on furniture stock. Blue annealed is 2.00c to 2.10c, and galvanized 3.40c to 3.50c, the usual price being 3.50c, with $2 a ton off to distributors.

Buffalo, July 24.—Quotations of 2.60c, base, Pittsburgh, on black sheets have been withdrawn, it is reported, with most sellers asking a minimum of 2.70c, and none do under 2.65c.

Cleveland, July 24.—Demand for sheet steel has held up surprisingly well. Several makers claim that sales this July will come close to establishing a summer record. Mills are operating 85 to 100 per cent, with some grades of sheets being quoted delivery of three to four weeks. The tone of the market is stronger, reflecting the upward trend in other products. More sales of blue annealed have been made at 2.00c, although 1.90c, Pittsburgh, still is done.

Chicago, July 24.—All lines consuming blue annealed sheets continue to take material at a fairly steady rate. Blue annealed backlogs are extended three to four weeks. Galvanized and black sheets are in light demand, although one producer reports fairly active demand from farm implement manufacturers for some sizes of galvanized sheets. Hot weather cuts production. Operations are about 60 per cent. Chicago delivered prices are 2.80c for No. 24 black, 3.65c for No. 24 galvanized, and 2.15c for No. 10 blue annealed.

St. Louis, July 24.—Sheet producers and distributors say general conditions and sales are satisfactory. There has been some improvement in demand for blue annealed. Prices are steady.

Structural Shapes

Fourth Quarter Prices Not Stimulating Third Quarter Specifications—Awards and Inquiries Include Fairly Heavy Projects

NAMING of a $2 advance for fourth quarter plain material has not stimulated any great increase in specifications against third quarter contracts. Mills are confident that announcing the increase now will tend to stabilize prices through the third quarter and make the establishment of the price easier for fourth quarter. Although some cases exist where lower levels exist, 1.90c, Pittsburgh, and 2.00c, Chicago, are ruling third quarter prices.

Awards and inquiries of the week involved few large tonnages, but the totals compared favorably with the seasonal average. Chicago contemplates an Apparel Mart to take 50,000 to 60,000 tons, for construction on air rights similar to the recently awarded Marshall Field warehouse.

STRUCTURAL SHAPE PRICES, PAGE 215

Philadelphia, July 24.—Structural fabricators are busiher in this district than in a long time, having two to four months' backlogs and more work under negotiation. Recent adoption of Pencoyd as a basing point for this district has resulted in smaller consumers here paying less than before. The price of 1.95c, Pencoyd, is 2.10c, delivered Philadelphia, now done freely on carloads. Large consumers have not been able to develop on new business the low prices which they had been getting. In some cases these low quotations are to be withdrawn at the end of July, in others at the end of August. New business has been shaded by about $2 a ton under 1.95c, Pencoyd. The current market is being observed with great interest, the allowing of concessions by giving rebates apparently having been revived.

Eastern shape mills have enjoyed a great increase in bookings in July compared with June and now are operating 70 to 75 per cent. It is expected the Pennsylvania railroad will issue its inquiry for third quarter plates, shapes and bars the coming week.

New York, July 24.—While perhaps not as active as a week ago, structural demand continues promising, with a number of large projects scheduled for early closing. There now appears little doubt but what awards this month in the metropolitan district will be the best so far this year, at least insofar as applied to building construction. The structural board reported 46,000 tons for May, the banner month, and it appears that already this month close to 40,000 tons has been placed. Bridgework throughout the East, of good volume all year, is represented by several fair-sized inquiries. Plain shapes are unchanged at 2.145c to 2.195c, New York, with the tendency upward, and this buoyancy now is commencing to be reflected in fabricated material prices.

Pittsburgh, July 24.—Structural shape fabricators in general are not being hastened into contracting for fourth quarter material, notwithstanding the fact that mills are quoting 2.00c for that period. Producers are maintaining a 1.90c minimum for plain material for delivery over the remainder of this quarter. Numerous shipments against contracts booked earlier are being billed at 1.85c.

Boston, July 24.—Structural steel awards in the New England district were about 1100 tons in the past week. Largest pending projects include 500 tons to go into the New York, New Haven & Hartford railroad's new produce terminal to be built in Providence, R. I.

Cleveland, July 24.—Placing of a few small tonnages in this district during the week added another ray of hope to the local structural shops. Operations have improved considerably, and shops are running better than in the summer of 1927. No large inquiries or awards are active except the Nickel Plate bridges in East Cleveland, on which action is expected this week. Plain material prices are firm at 1.90c, Pittsburgh, for new business, although some 1.85c tonnage continues to be shipped.

Chicago, July 24.—Contracts for more than 7000 tons of structural steel were closed in the Chicago district and in the West, mostly in small lots. The five proposed junior high schools for Chicago will take about 4500 tons, and bridgework in Illinois and Louisiana calls for 3500 to 4000 tons. Estimates are that the Apparel Mart, being projected for recently acquired air rights over the Illinois Central tracks in Chicago, will require 50,000 to 60,000 tons, but financing has not been completed. Some reports are that the steel will be purchased in the early autumn. A fair amount of contracting is reported for third quarter at 2.00c, Chicago, but contracts are based on actual projects in sight. Tonnage differentials are quoted to large fabricators.

Awards Compared

	Tons
Awards this week	22,843
Awards last week	55,440
Awards two weeks ago	59,554
Awards this week in 1927	31,460
Average weekly awards, June	45,089
Average weekly awards, 1928	39,797
Total awards to date, 1927	1,057,174
Total awards to date, 1928	1,154,132

CONTRACTS PLACED

3000 tons, welded pipe shop addition for A. O. Smith Corp., Milwaukee, to Wisconsin Bridge & Iron Co.

2100 tons, church and hotel, East Seventy-sixth and Broadway, New York, to Easton Structural Steel Co.

1500 tons, American Express Co. building, St. Louis, to Mississippi Valley Structural Steel Co.

1240 tons, building at East End avenue and Seventy-ninth to Eightieth streets, New York, reported awarded to unstated fabricator through James Stewart & Co., general contractors.

1045 tons, Henry Mandel Building Co. apartment, 55 East Tenth street, New York, reported awarded to unstated fabricator.

1000 tons, Jocelyn memorial, Omaha, Nebr., to Omaha Structural Steel Co.

1000 tons, headframe, machine shop, steel hoist house and steel bins for Consolidated Copper Mines Corp., Kimberly, Nev., to Kansas City Structural Steel Co. previously noted as 900 tons for unstated company.

900 tons, Temple Sholem, Sheridan road and Cornelia avenue, Chicago, erecting contract to Chicago Steel Construction Co.

750 tons, addition for Northern Paper Mills, Green Bay, Wis., to Worden-Allen Co. previously rated as 700 tons for unstated company.

750 tons, building for Northern Paper Mills, Green Bay, Wis., to Worden-Allen Co., previously reported for undisclosed company.

750 tons, power house addition, Edgar station, for Edison Electric Illuminating Co., Weymouth, Mass., to New England Structural Co.

700 tons, Thalheimer Bros. department store, Richmond, Va., to Richmond Structural Steel Co.

700 tons, Methodist Episcopal home, 244th street, New York, to A. E. Norton Inc.

700 tons, addition to Union Pacific building, Omaha, Nebr., to American Bridge Co.

580 tons, Dura building, Toledo, O., through A. Bentley & Sons, general contractors, to Pittsburgh Bridge & Iron Works.

550 tons, building for Pennsylvania Transfer & Garage Co., West End, Pittsburgh, to John Eichleay Jr. Co.

500 tons, car defreezing plant for Pennsylvania railroad, Philadelphia, to Belmont Iron Works.

500 tons, soaking pit and blooming mill extension, Otis Steel Co., Cleveland, to Wellman-Seaver-Morgan Co.

500 tons, building for Pierce Distributing Co., 3426 South Kedzie avenue, Chicago, erecting contract to Chicago Steel Construction Co.

435 tons, melting building for Aluminum Co. of America at Arnold, Pa., to McClintic-Marshall Co.

467 tons, two contracts, nine deck plate girder spans each, one of 165 tons and one of 302 tons, for Missouri Pacific railroad, to American Bridge Co.

450 tons, two bridges for Hocking Valley railroad, to American Bridge Co.

400 tons, plant addition to chemical works, Tacoma, Wash., to Star Iron & Steel Co.

350 tons, Wabash railroad fruit receiving depot, St. Louis, to Mississippi Valley Structural Steel Co.

300 tons, waste heat house for Marquette Port-Chicago Heights, Ill., to Worden-Allen Co.

275 tons, finished steel warehouse for American Rolling Mill Co., at Ashland, Ky., to

Jones & Laughlin Steel Corp.

261 tons, East State street bridge, Olean, N. Y., to McClintic-Marshall Co.

253 tons, bridge over Sweetwater river, San Diego, Calif., to Robt. T. Dawson.

250 tons, first unit for David Lupton's Sons Co. plant at Clearing, Ill., manufacturing district, to Jones & Laughlin Steel Corp.

250 tons, Pennsylvania railroad bridge, to American Bridge Co.

250 tons, armory building, Norwich university, Northfield, Vt., to McClintic-Marshall Co.

250 tons, Jewish orphan asylum, Fairmount boulevard, Cleveland, to Republic Structural Iron Works. Morris & Weinberg, architects.

232 tons, mill building addition for Michigan Steel Corp., Detroit, to Russell Wheel & Foundry Co.

225 tons, building No. 17, Glendale, Long Island, N. Y., to McClintic-Marshall Co.

207 tons, three bridges for Wabash railway, to American Bridge Co.

200 tons, additional to 500 tons recently let for pottery kiln building for Kohler Co., Kohler, Wis., to Worden-Allen Co.

200 tons, New York Central railroad bridge, South Bend, Ind., to McClintic-Marshall Co.

182 tons, 284 truss girder spans for Missouri Pacific railroad, to Virginia Bridge & Iron Co.

180 tons, auto building, Twenty-ninth street, Oakland, Calif., to California Steel Co.

178 tons, arcade stores for Book building, Detroit, and compressor house for Chrysler Corp., Detroit, to Russell Wheel & Foundry Co.

170 tons, bridge over Alameda creek, Oakland, Calif., to Herrick Iron Works.

150 tons, highway bridgework, Illinois, to Continental Bridge Co.

150 tons, power house, Lawrence, Mass., to New England Structural Co.

134 tons, weave shed, Sharon, Ga., through A. K. Adamson Co., general contractor, to unstated fabricator.

130 tons, power plant for University of Chicago, Blackstone avenue, Chicago, to Midland Structural Steel Co.

129 tons, church, Brooklyn, New York, to McClintic-Marshall Co.

120 tons, state bridge, Cle Elum, Wash., to unnamed eastern interest.

100 tons, laboratory for Metro-Goldwyn-Mayer Co., Los Angeles, to Union Iron Works..

100 tons, bridge repairs for Northern Pacific railroad, to Pacific Car & Foundry Co.

100 tons, building for Davis Bros., Philadelphia, to Belmont Iron Works.

CONTRACTS PENDING

4500 tons, remainder of tonnage needed for Cathedral of Learning, Pittsburgh; bids closed July 24.

4500 tons, five junior high schools, Chicago.

4000 to 4500 tons, grade elimination work for Nickel Plate and New York Central railroads in East Cleveland, Cleveland; revised bids in, award expected this week.

2815 tons, two river bridges in Louisiana.

1600 tons, Blackstone hotel, Philadelphia.

1100 tons, Pennsylvania railroad freight station, Pittsburgh; Pittsburgh-Des Moines Steel Co. low bidder.

600 tons, bridge at Sixth and Allegheny, Philadelphia.

600 tons, Greenhill farms building, Philadelphia.

600 tons, highway bridgework, Marseilles, Ill.; steel bids in.

500 tons, Hildebrecht building, Trenton, N. J.

500 tons, produce terminal structure for New York, New Haven & Hartford railroad, Providence, R. I.

500 tons, state bridge, Baltimore.

450 tons, high school, Great Falls, Mont.

400 tons, bridge over Los Angeles river, Glendale, Calif., for Pacific Electric railway; bids soon.

400 tons, Sewickley Valley hospital, Sewickley, Pa.; bids closed July 25.

250 tons, New Jersey state bridge.

250 tons, two municipal bridges, Philadelphia.

250 tons, hangar No. 4 for port commission, Oakland, Calif.; bids in.

200 tons, administration building for Simmons college, Boston.

200 tons, Pennsylvania railroad bridges.

180 tons, 280-foot span bridge, city Youngstown, O.; Pittsburgh-Des Moines Steel Co. low bidder.

175 tons, bridge at Ashdale street, Philadelphia.

165 tons, bridge at Leverington avenue, Philadelphia.

Unstated tonnage, loft building for Horn & Hardart, 682 Eleventh avenue, New York.

Concrete Bars

Large Lettings Few but Total Awards of Week Good—Inquiry Unusually Favorable

LARGE awards of concrete bars were few during the week, but the aggregate of contracts let was in keeping with the high activity of the past several months. Inquiries continue good, New York district large projects total 4000 to 5000 tons, while two contracts in Chicago are expected to take 1000 tons each. Prices of concrete bars have not followed the upward trend of merchant bars.

REINFORCING BAR PRICES, PAGE 215

New York, July 24.—The largest concrete reinforcing bar order placed in this territory during the past week involved 700 tons for subway work in Brooklyn. Several large projects now being figured involve 4000 to 5000 tons and all of this business is expected to be placed within the next few weeks. Prices on concrete reinforcing bars have reflected no effect of the recent advancing tendency in the price of commercial bars. The market on concrete reinforcing bars on mill shipment is 1.90c, base, Pittsburgh, while occasionally lower is done. On stocks in New York the price ranges from 2.80c to 3.24c, base, delivered locally. On Youngstown stocks, the price continues 2.20c, base, Youngstown.

Boston, July 24.—Odd lot tonnage requirements for small jobs throughout this district, have kept the market for reinforcing steel on its feet. Better than 300 tons was figured during the week.

Pittsburgh, July 24.—Lettings in reinforced concrete bars represent a heavy tonnage. An effort is under way to have shipments from mills confined to lengths of 40, 50 or 60 feet, making necessary purchases of smaller lengths from warehouses. Mill price is firm at a 1.90c minimum, with 2.00c announced for fourth quarter.

Buffalo, July 24.—Although the peak of reinforcing bar buying has been passed for the season, in the opinion of Buffalo makers, three lots of 100 to 130 tons have been sold in the past week and a fair amount of business is pending. Sharp competition has forced quotations as low as 1.90c, Buffalo, on the best tonnage shipped direct from steelworks, while as low as 2.10c has been quoted on truck delivery lots.

Cleveland, July 24.—No large contracts were closed in the concrete bar market this past week. Inquiries were limited. New billet bar prices are 1.85c to 1.90c, Pittsburgh, from outside mills, but no test of local prices has revealed a flat market. Rail steel holds at 1.75c, mill.

Chicago, July 24.—Shipments of rail steel reinforcing bars are estimated to be 25 to 30 per cent ahead of last year, while billet bar shipments are leading over last year by 5 to 10 per cent. A building for the General Electric Co. in Chicago will take 1000 tons, and five junior high schools to be built this season will take similar amount. The 2.30c minimum price for billet bars has been shaded only for larger awards.

Awards Compared

	Tons
Awards this week	5,925
Awards last week	5,601
Awards two weeks ago	4,670
Awards this week in 1927	6,806
Average weekly awards, June	7,534
Average weekly awards, 1928	7,275
Total awards to date, 1927	165,395
Total awards to date, 1928	210,989

CONTRACTS PLACED

700 tons, section 2A, route 109, subways, New York, to Day & Goater Inc., through Rodgers & Hagerty.

400 tons, paving in Ventura county, Calif., for state highway commission to, unnamed interest.

400 tons, warehouse for Frederick & Nelson, Seattle, to Pacific Coast Steel Co. and the Northwest Steel Rolling Mills.

400 tons, Northern Ohio Food Terminal, Cleveland, to Bourne-Fuler Co., noted last week as awarded unstated fabricator.

360 tons, two grade schools, Chicago, to Concrete Engineering Co.

350 tons, hotel, Fifth avenue and Virginia street, Seattle, to Northwest Steel Rolling Mills.

350 tons, Mercantile building, St. Louis, to Missouri Rolling Mill Co.

300 tons, cement plant, Cleveland, to Bourne-Fuller Co., noted last week as awarded unstated fabricator.

275 tons, Rumbaugh department store, Everett, Wash., to Pacific Coast Steel Co.

250 tons, Sulgrave Manor apartments, Oak Park, Ill., to unstated fabricator.

250 tons, garage, 343 South Wabash avenue, Chicago, to Joseph T. Ryerson & Son Inc.

250 tons, apartment, Rosewood and Rossmore avenue, Los Angeles, to unnamed interest.

250 tons, various jobs for Illinois highway commission, to Laclede Steel Co.

200 tons, Wabash railroad fruit receiving warehouse at St. Louis, to Laclede Steel Co.

200 tons, grade school, Chicago, to Barton Spider-Web System Inc.

170 tons, school administration building, at Oakland, Calif., to Pacific Coast Steel Co.

160 tons, Washington Plaza apartment hotel, Chicago, to Concrete Engineering Co.

150 tons, Bridgeport Post building, Bridgeport, Conn., to Concrete Steel Co.

150 tons, McSorley garage, Pittsburgh, to Carlem Engineering Co.

130 tons, Grimshaw garage, Seattle, to Northwest Steel Rolling Mills.

130 tons, Elmwood avenue grade crossing, Rochester, N. Y., to Kalman Steel Co.

100 tons, auto building, Twenty-ninth and Broadway, Oakland, Calif., to Gunn, Carle & Co.

100 tons, highway work in Washington to Northwest Steel Rolling Mills.

100 tons, filtration plant, Eastman Kodak Co., Rochester, to Kalman Steel Co.

100 tons, Bird Island pier, Buffalo, to Kalman Steel Co.
100 tons, including 75 tons for pumping station, Springfield, Mass., to Concrete Steel Co.
100 tons, new Crane Co. warehouse at Dallas, Tex., to Laclede Steel Co.
100 tons, Waxite Paper Co. warehouse, St. Louis, to Missouri Rolling Mills Co.

CONTRACTS PENDING

2288 tons, drainage to improve District No. 26, Los Angeles; H. M. Baruch Corp. low bidder on general contract.
1000 tons, five junior high schols, Chicago.
1000 tons, building for General Electric Co., West Pershing road and Ashland avenue, Chicago; Graham, Anderson, Probst & White, architects.
500 tons, track elevation for Chicago Rapid Transit Co., Evanston, Ill.
500 tons, new produce terminal for New York, New Haven & Hartford railroad, Providence, R. I.
325 tons, Harmon sports arena, Chicago; J. W. Snyder Co., general contractor.
250 tons, apartment building, Fullerton parkway, Chicago; McNally & Quinn, Chicago, architects.
250 tons, garage, Wabash avenue and Harrison street, Chicago.
150 tons, Cushman project spillway for Tacoma, Wash.; bids in.
100 tons, sewers, Philadelphia.

Bolts, Nuts, Rivets

Implement Interests Specify More Heavily—Rivets Easy in East

NUT AND BOLT PRICES, PAGE 216

Chicago, July 24.—Farm equipment makers in western territory are releasing steadily a greater volume of specifications for bolts, nuts and rivets. Jobbers generally are more active in the spot market, due to encouraging crop reports in the North Central states, the Northwest and Southwest. Automotive activity in the Detroit district results in steady business. Increase in farm implement buying helps mill operations. Small rivets are 70 to 70 and 10 off.

New York, July 24.—Prices on rivets continue easy. The usual list price is 2.90c, base, Pittsburgh, but on attractive orders, prices paid range from 2.65c to 2.80c.

It is estimated that operations at eastern bolt and nut plants average 50 to 55 per cent of capacity, which is considered good for this season. Prices continue firm at 70 per cent off the list for jobbers and large consumers and 60 per cent off for dealers and small consumers.

Pittsburgh, July 24.—Miscellaneous orders are being received by nut, bolt and rivet manufacturers but operating schedules continue to average about 50 per cent for rivetmakers and 60 per cent for nut and bolt manufacturers.

Cleveland, July 24.—Bolt and nut makers in this district report a satisfactory volume of business and specifications holding to the volume of June, an active month. Operations vary between 65 and 75 per cent. Rivet demand approximates that of a month ago. Prices are firm at 70 off for bolts and nuts, 2.90c for structural rivets and 70 and 10 off for small rivets.

Rails, Cars

Norfolk & Western Closes on 40,000 Tons of Rails—Equipment Inactive

THE largest contract for rails since the secondary buying movement started several weeks ago is the placing of 40,000 tons by Norfolk & Western. Few other rail needs have reached the inquiry stage as yet. Recent track fastenings sales at Chicago totaled 6000 to 7000 tons. Equipment is inactive, no large inquiries or awards marking the week.

RAILROAD TRACK PRICES, PAGE 216

New York, July 24.—Domestic freight car buying continues slack, with little fresh inquiry pending. Export buying, unusually good of late, is represented by the placing of 150 box cars for the International Railways of Central America. Approximately 2950, and all for Central or South American lines, have been placed within the past 30 days, including certain awards reliably reported, although lacking definite confirmation.

The Norfolk & Western railroad has placed 40,000 tons of rails, of which 29,000 tons will be supplied by United States Steel Corp. subsidiaries and 11,000 tons by Bethlehem Steel Co.

Pittsburgh, July 24.—Railroads and other buyers of track accessories have been furnishing specifications in an active way to spike and tie plate makers here. As a consequence, the present period for orders and shipments is much better than a year ago. Recent releases have included attractive lots for Pennsylvania railroad. Makers are on a 50 to 60 per cent operating basis and while prices are relatively low in view of production costs, present quotations of $43 on tie plates and 2.80c on spikes are firm.

Light rail orders still are small, being mostly for single carloads or two or three carloads at a time. In the past week, such business has been at a particularly low ebb. The base is firm at $36.

Chicago, July 24.—Three western railroads took about 1300 tons of standard steel rails to piece out requirements for the season. While rail mill schedules are thinning, it is indicated further important rail shipments on 1928 tonnage may be ordered in August and hopes are entertained that the present 60 per cent operating rate for Chicago district rail mills may be continued later than had been expected.

New track fastenings sales of the week totaled 6000 to 7000 tons, while specifications were for about 8000 tons. Specifications are being received for a part of the Pennsylvania track accessories order.

Early action is expected on the Chicago & Eastern Illinois inquiry for 100 automobile cars. Some reports are heard that this road may ask bids on additional automobile cars later in the year. Nothing definite has appeared from the Illinois Central regarding proposed car purchases this year, although it is stated the road is in need of new equipment. Additional equipment buying is expected from Northwestern carriers as a result of the reports of their increased earnings.

CAR ORDERS PLACED

American Cyanamid Co., five hoppers, to General-American Car Corp. in addition to 20 noted placed last week.
American Oil Co., Baltimore, one tank car, to General-American Tank Car Corp.
Carnegie Steel Co., 16 hopper car repairs, to Greenville Steel Car Co.
Canadian National Railway, three baggage-mail cars, to American Car & Foundry Co.
Chicago Great Western, three baggage-mail cars, to Pullman Car & Mfg. Corp.
Fruit Growers Express, 150 underframes, 100 to Pressed Steel Car Co., 50 to unstated builder.
International Railways of Central America, 150 box cars, to Gregg Co.

CAR ORDERS PENDING

Baltimore & Ohio, 550 refrigerator cars.
United States Navy, two gondolas.

Arranging Machine Shop Practice Meeting

Cincinnati will be the host to the next national meeting of the machine shop practice division of the American Society of Mechanical Engineers, Sept. 24-26. In connection with this meeting the Cincinnati committee has arranged a boat trip to Ashland, Ky., for the purpose of visiting the new continuous sheet mill of the American Rolling Mill Co. at Ashland. Technical sessions will be held on board during the trip and a symposium on machine tools will take place in Cincinnati upon return. Members of the machine tool congress have been invited to participate in the proceedings.

Addition of an inhibitor to the pickling bath affords a high bath temperature, a stronger acid solution and an increase in production.

Wire

Market Is Steadier—Business Holding Up Well—Manufacturers Continue to Specify

DEMAND for wire and wire products is fairly active, with specifications for manufacturers' wire particularly good. Sales of wire cloth this year are reported to be the best in several years. Prices are more stabilized at the levels announced last week. A few eastern jobbers have placed contracts for nails for third quarter at $2.55.

WIRE PRICES, PAGE 216

New York, July 24.—Buyers of wire nails, plain steel wire and other wire products have benefited by the recent announcement of $2.65, base, Pittsburgh, and $2.40, base, Pittsburgh, as the minimum prices, respectively, on nails and wire. In this territory a few jobbers have been paying $2.60 or $2.65 for nails, and the minimum was $2.55, so the ones to benefit are those who were paying $2.65 and $2.60. The $2.55 price, incidentally, is the minimum to jobbers while the minimum price on nails to retailers is $2.65. The mills give every evidence of being very careful to distinguish between jobbers and retailers, and at present the $2 differential is firmly maintained. A few eastern jobbers have placed nail contracts for third quarter at $2.55. A majority of users of plain manufacturers' wire have refrained from contracting and either are using from stock or are buying as they need at $2.40, base, Pittsburgh.

Worcester, Mass., July 24.—Buying of plain steel wire and wire products holds fairly well during the seasonal lull. The price situation is more clarified with most independent makers following the leading interest in establishing 2.55c, Worcester, for plain wire. There is some deviation from this toward higher levels for small lots, but the market appears to be stabilizing around 2.55c. Manufacturers' wire and specialty products continue to lead demand, and while most buying is in limited lots the total is well ahead of recent summer seasons.

Pittsburgh, July 24.—Plain wire and wire nail specifications are fairly active now that the price has become more stabilized. Base prices are firmly held at 2.40c for wire and $2.55 for nails. Selling efforts are hampered by vacations, one independent maker having had all of its men off the road the first two weeks of July. Operations average 40 per cent.

Buffalo, July 24.—Wireworks are continuing operations at 75 per cent or more. Wire cloth sales have been the best in several years. Netting sales have been fair. Fence and welded fabric for road work have helped maintain wireworks operations at a high rate, while purchases of wire for automobile seat springs have been large. The new wire base of 2.40c can be obtained on medium as well as large tonnage.

Cleveland, July 24.—Strengthening of the tone in the nail and wire market is perceptible. No quotations have been uncovered in the past week or ten days under the recently established levels of 2.40c, Cleveland, for plain wire, and $2.55, Cleveland, for wire nails.

Chicago, July 24.—Western wire mills have closed a good farm fencing season, but fencing and barbed wire demand is tapering sharply. Specifications are holding well for manufacturers' wire. Jobbing business is picking up in the Northwest and Missouri river territory owing to encouraging reports on corn and wheat crops. Southern jobbers are more hesitant. Operations are 60 to 65 per cent. Bright plain wire is 2.45c, Chicago, or western mill.

Cold Finished Steel

Demand May Make Seasonal Record Due to Heavy Automotive Releases

COLD FINISHED PRICES, PAGE 215

Pittsburgh, July 24.—While several makers are talking about the necessity for an advance in price for the fourth quarter, no one has done anything definite as yet, and in the meantime 2.10c is firm. Shipments of cold finished bars this summer will probably be the heaviest on record in a number of instances.

Cleveland, July 24.—Demand for cold finished steel bars has eased off slightly in this district according to several producers, but holds to an unusually high seasonal level others report. Prices are firm at 2.15c, Cleveland, with no talk as yet of fourth quarter.

Strip

Improvement in Strip Specifications Surprising Producers—Prices Firmer for New Business

INCREASED manufacturing operations, recovery from June quietness and heavier automotive needs have stimulated demand for hot rolled strip steel beyond producers' expectations. Cold finished buying has not improved as markedly. Prices are firmer for new business, although evidences exist of second quarter contract coverage being caried over at lower levels.

STRIP PRICES, PAGE 216

Pittsburgh, July 24.—Tonnage is accruing to strip steel makers in this locality in an increased measure, and there is a lessening tendency to meet price concessions which various buyers report available. Cold strip manufacturers have inaugurated a range of 3.00c to 3.10c, 2.75c to 2.85c for three tons or more, instead of the 3.00c to 3.15c range formerly quoted.

Hot strip makers here are quoting with an increased measure of success 1.90c to 2.00c on 6 to 12-inch material, 2.00c to 2.10c on 3 to 6-inch and 2.10c to 2.20c on narrow hoop and band stock. Automotive tonnage holds up well, July being better than June.

Philadelphia, July 24.—Strip steel demand is brisk with mills generally having full operating schedules. Some mills are filled for a couple of months on narrow widths. Prices range from 2.00c to 2.20c, on less than 3-inch; 1.90c to 2.05c, on 3 to 6-inch and 1.75c to 1.90c, on 6 to 12-inch. The bottoms of the spreads named now are exceptional and the general market seems somewhat firmer. Cold strip ranges from 2.75c to 2.90c, base, Pittsburgh, with little tonnage now going under 2.75c.

Cleveland, July 24.—Buying of hot rolled strip steel has held up in the past week with improvement shown in some directions. Prices generally are quoted 1.90c, Pittsburgh, for 6 to 12-inch, to buyers not covered on first and second quarter contracts. Where large buyers have covered consistently with the same producers, the second quarter level of 1.75c is found to apply. Spot business also is at 1.90c. Producers of narrow strip have good backlogs, running into September. Cold strip buying is spotty but fair. The market continues 2.75c, Cleveland, for three tons or over of a size, with 2.65c, the attractive tonnage price.

Chicago, July 24.—The price of 2.65c, Pittsburgh and Cleveland, is appearing consistently for cold rolled strip, for lots of three tons and over, and the range of 2.65c to 2.75c is being quoted. Competition is sharp for all cold rolled strip business offered.

Nonferrous Metals

Slack Demand For Metals Is Offset by Continued Large Shipments on Old Orders—Outlook for New Buying Is Held Promising

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
July 18	14.75	14.82½	14.47½	47.75	47.25	6.20	6.00	6.20	23.90	9.50	35.00
July 19	14.75	14.82½	14.47½	47.62½	47.37½	6.20	6.00	6.20	23.90	9.50	35.00
July 20	14.75	14.82½	14.42½	47.50	47.12½	6.20	6.00	6.20	23.90	9.37½	35.00
July 23	14.75	14.82½	14.42½	47.62½	47.00	6.20	6.00	6.20	23.90	9.37½	35.00
July 24	14.75	14.82½	14.42½	48.12½	47.62½	6.20	6.00	6.20	23.90	9.62½	35.00

NEW YORK, July 24.—Slack buying of nonferrous metals is offset by large shipments. Moreover the outlook for new buying is promising. Large operations in the steel industry, construction work, and automobile building, indicate that much more buying of metals is to be done. Prices changed little the past week.

Brass and copper mill operations are holding up well for the summer season. Prices have held unchanged since the latter part of May. Not much new buying is being done just now but most mills are well booked for next month.

Copper—Buying of this metal was extremely light the past week for domestic shipment, but producers believe that users in this country probably will begin to show more interest in their September requirements this week. The price remains unchanged and firm at 14.75c, Connecticut. Export buying has remained a little more active than domestic, so that the sales so far this month are somewhat larger than domestic business. The buying now is mostly for August and September shipment. Quite a bit more export than domestic business has been done so far for September, though sales for August have been more nearly in the normal proportion. Refineries are well caught up with shipping schedules but metal continues to be shipped out as rapidly as it comes from furnaces.

Tin—This metal has fluctuated in a narrow range, mostly a little under 48.00c for spot, with more distant position ranging down to about 47.00c. About a week ago some good buying was done and the price jumped nearly 2.00c but fell back a little as soon as the buying let up. There appears to be a little better recognition in the price situation that consumption is holding up to an unusually large tonnage this summer. On the other hand, output continues at top notch so that the metal is in liberal supply.

Zinc—Prime western metal has been quiet the past week with a little business from day to day for early shipment. Prices remain at 6.20c, East St. Louis, though there have been some rumors of shading. Little metal has been sold for August shipment at 6.25c. Some factors in the market expect the August price to become also the prompt price in a short while; in other words prompt metal is expected to go up 5 points, just as it did at the turn of last month, after there had been a differential of 5 points between prompt and the following month.

Lead—Buying of lead has been more active the past week. Most business has been for prompt shipment and the market now is firmer at the recently cut level. In fact there is some expectation that the East St. Louis price may go a little above 6.00c if buying continues active a few days longer.

Aluminum—Prices remain unchanged and shipments are of good size for this season.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	19.25
Copper, hot rolled	23.50
Lead, full sheets (cut ¼c more)	10.00
Zinc (100-pound base)	9.25
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	24.12½
Copper	25.00
RODS	
Yellow brass (high, full turning)	17.00
Naval brass	19.75
WIRE	
Copper, car lots	16.37½
Yellow brass (high)	19.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.50 to 9.75
Chicago	9.50 to 10.00
Cleveland	10.25 to 10.50
HEAVY YELLOW BRASS	
Chicago	7.00 to 7.25
Cleveland	7.50 to 7.75
ZINC	
New York	3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	12.25
Boston	11.50 to 12.00
Chicago	11.50 to 12.00
Cleveland	12.00 to 12.25
RED BRASS BORINGS	
New York	8.50 to 9.00
YELLOW BRASS TUBING	
Cleveland	7.50 to 7.75
LIGHT COPPER	
New York	10.75
Chicago	10.50 to 10.75
Cleveland	10.75 to 11.00
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.75 to 7.00
Cleveland	6.00 to 6.25
ALUMINUM	
Clippings, Cleveland	17.00 to 17.50
Borings, Cleveland	9.00 to 10.00
Cast, Cleveland	12.50 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt Aluminum No. 12	16.00
Brass ingot, 85-5-5	12.50 to 13.00

Coke By-Products

Toluol Demand Is Sustained—Naphthalene Prices May Slide

New York, July 24.—Exceptionally good demand prevails for toluol and benzol. In toluol, buying is as active as at any time since January. Solvent naphtha and commercial xylol, on the other hand, are moving only fair, and phenol, slowly. In all cases, however, prices are unchanged.

Seasonal contracting by the fertilizer industry is expected to end within the next week or so. Over the past three or four weeks considerable quantities of this material have been booked at $2.20, delivered. Export buying is slack with prices easy and nominal at around $2.30, port, for material in double bags.

Demand for ball and flake naphthalene also is slowing up materially, although prices continue unchanged at 6 to 7 cents, works, for both flakes and balls. An easy tone prevails, however, with a likelihood of a reduction shortly.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent benzol	0.22	.....
Toluol	0.35	.....
Solvent naphtha	0.30	.....
Commercial xylol	0.30	.....
Phenol	0.17	.....

Per Pound at Producers' Plants

Naphthalene flakes	0.06 to 0.07
Naphthalene balls	0.06 to 0.07

Per 100 Pounds Delivered

Sulphate of ammonia	$2.20

Buffalo Steel Rate Rises

Buffalo, July 24.—Steelworks operations at 79 per cent show a slight increase this week, to the high point of the quarter. August operation will begin at about 80 per cent, it is predicted.

Warehouse

Demand Holds Unusually Well for July, a Normally Dull Month—Readjustment of Sheet Prices About Completed

SALES of iron and steel warehouses have been holding up unusually well for the season, several districts, such as Buffalo and St. Louis reporting better buying than for several months. Prices were unchanged during the week, readjustment of sheet quotations to harmonize with reduced mill levels being about completed.

Philadelphia jobbers report July demand fully equal to or above the June rate. This summer, so far, is the best in years. Prices continue to hold firm and jobbers report good net earnings in the first half for the first time in years. Prices for the week were unchanged.

Unusually good activity for this season of the year and advancing mill prices have provided the New York metropolitan warehouse market with greater firmness than has prevailed in some time. While jobbers generally look for no advance, at least insofar as the major products are concerned, they do look for continued steadiness. Revival in building work in this district has stimulated jobbing demand for shapes, plates and bars.

Sales of iron and steel by Buffalo warehouses in the first three weeks of July are greater than those of any like period to date this year. The volume and character of business have been a surprise even to the warehouse operators. Business has been well spread.

Cleveland jobbers find July sales from warehouses about equal to those of June, although orders and tonnage for some are running slightly behind. Demand is general, coming largely from miscellaneous manufacturing industries and the building trades. Machine shops manufacturing automotive parts are active buyers. Cold finished bars are moving in good quantity from warehouses.

Recent sales made by Chicago warehouses are holding to the June level although quietness has developed.

Business with St. Louis warehouses is reported spotty but satisfactory for this time of year. Small-sized orders rule but the aggregate makes a fair showing, and demands are well diversified.

One leading interest reported the second week in July the best it has experienced for several months. Sales of boiler tubes and other tubular goods since July 1 have been heavy, due to backward mill deliveries, and need for emergency material to apply on recently booked orders. A slightly better tone prevails in wire and wire products, though nails are still slow.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York††	3.25c
Philadelphia*	2.60c
Pittsburgh	2.90c
Portland	2.50c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York†	2.80c to 3.24c
Philadelphia*	2.60c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.95c to 3.10c
Philadelphia	2.30c to 2.80c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.85c
San Francisco lcl.	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.30c
New York†	3.25c to 3.30c
Philadelphia	2.40c to 3.00c
Pittsburgh	3.00c
Portland	2.90c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York†	3.30c
New York† (floor)	5.05c to 5.10c
Philadelphia	2.40c to 3.00c
Phila., 3/16-in.	2.60c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	4.00c
New York	3.90c
Portland	3.75c
Philadelphia*†	3.15c
Pittsburgh**	3.00c to 3.10c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

No. 24 BLACK SHEETS

Baltimore	3.10c to 4.00c
Boston	5.00c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.65c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York†††	3.70c to 3.80c
Philadelphia*†	3.85c
Pittsburgh‡	3.55c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.75c

No. 24 GALVANIZED SHEETS

Baltimore	4.10c to 4.75c
Boston	5.85c
Buffalo	4.70c to 5.05c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.40c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York†††	4.50c
Philadelphia *†	4.60c
Pittsburgh‡	4.40c
Portland	5.50c
San Francisco	5.50c
Seattle	5.75c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.15c
New York†	4.00c
Philadelphia*	3.25c
Pittsburgh	3.60c
Portland	3.75c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York†	4.50c
Philadelphia*	3.50c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore	3.35c	3.85c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.40c	3.90c
Philadelphia*	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland (a)	4.75c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.66c	5.16c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.35c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c

Flats and Squares

Baltimore, New York, Phila.	6.60c

*Plus quantity differentials. †Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles. †††Newark-Jersey City 4.00c on black and 4.70c on galvanized the more prevalent figures.

Pacific Coast

Shapes and Concrete Bars Lead Demand—Foreign Steel Is Less Disturbing

IRON and steel demand on the Pacific coast is about normal for the season. Awards are not outstandingly large but the day-to-day flow of business is generally satisfactory. Los Angeles has bought 2100 tons of cast iron pipe. Coast warehouses may have to revise their sheet prices in conformity with reductions at eastern mills. Plates are being shaded on attractive lots.

San Francisco, July 21.—(By Air Mail)—Movement of iron and steel products on the Pacific Coast during the past week was confined principally to structural steel shapes and reinforcing bars. Outstanding among awards was 2100 tons of cast iron pipe for Los Angeles and 400 tons of reinforcing bars for a warehouse in Seattle for Frederick & Nelson, divided between Pacific Coast Steel Co. and Northwest Steel Rolling Mills.

Pig Iron and Coke

Demand for both foundry pig iron and coke recently has been limited to small lots and consumers, apparently, have sufficient stocks on hand to take care of present requirements. Foundry operations have shown little improvement during the past month and most jobbing plants continue to operate on orders booked only a day or two in advance. No change in quotations is noted.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Concrete bar awards this week aggregated 2161 tons and brought the total for the year to 53,658 tons, compared with 30,756 tons a year ago. Among larger awards were 350 tons for a hotel in Seattle booked by the Northwest Steel Rolling Mills, 400 tons for highway work in Ventura County, Calif., placed with an unnamed interest, and 170 tons for a school administration building in Oakland, placed with the Pacific Coast Steel Co. Bids were opened on 2280 tons for a drainage improvement project in Los Angeles. New inquiries involve 300 tons for a department store at Everett, Wash., and 134 tons for Cushman spillway at Tacoma. Out-of-stock prices in the San Francisco district are somewhat firmer and 2.00c now represents the general run.

One inquiry of importance for plates is before makers, 500 tons for water mains in Oakland for the East Bay municipal utility district. The only big award was 200 tons for burners for Weyerhauser Timber Co. at Longview, Wash. To date this year 18,936 tons has been placed, against 47,742 tons a year ago. While 2.25c c.i.f. is the usual quotation on plates, some smaller independent companies quote 2.20c.

Awards of structural shapes this week aggregated 1253 tons and brought the total for the year to 83,140 tons, against 87,551 tons a year ago. Included were 400 tons for a chemical plant addition in Tacoma, booked by the Star Iron & Steel Co., 253 tons for a bridge at San Diego, Calif., placed with Robt. T. Dawson, and 180 tons for an auto service building in Oakland, placed with the California Steel Co. Pending business now exceeds 12,000 tons. Among new inquiries are 250 tons for a hangar in Orkland for the port commission and 400 tons for a bridge at Glendale, Calif.. for the Pacific Electric railroad. Plain material continues firm at 2.35c c.i.f.

Other Finished Material

Demand for cast iron pipe has slumped during the past four or five weeks and awards this week involved approximately 3300 tons. So far this year 48,780 tons has been booked, compared with 52,438 tons a year ago. Los Angeles placed 855 tons of 12-inch, 844 tons of 8-inch and 422 tons of 8-inch class 350 pipe with American Cast Iron Pipe Co., Pacific States Cast Iron Pipe Co. and Jones, Lyman & Co., respectively. The largest pending inquiry calls for 22,325 tons of 24 to 44-inch Class C pipe for a distributing system in Oakland, Calif., for the East Bay municipal utility district. Bids will be opened next week on 416 tons for Tracy, Calif. Conditions in the oil fields have shown little improvement and from present indications little new business can be expected the balance of the year.

Northwest Trade Normal

Seattle, July 18.—Inquiry for iron and steel products in the Pacific Northwest continues normal. No large awards featured the market this week but considerable new work is soon to be up definitely. Prices are holding their own, although jobbers may have to revise their schedules in line with new mill quotations on sheets.

Trade generally in the Pacific Northwest is good. A local survey shows that the volume of business in Seattle reflects a more stable condition during the last six months than prevailed in many cities in other sections. Retailers here report trade was backward due to unfavorable spring weather but the totals for the half year in many instances exceeded the volume of the corresponding period 1927 by 10 to 25 per cent. Seattle is sponsoring a number of notable civic projects.

Bars, Plates and Shapes

Local steel mills are operating steadily, the bulk of new business consisting of tonnages of less than 100 tons. However, totals are satisfactory and the outlook is reassuring. Mill prices of merchant bars are unchanged at 2.35c and reinforcing is about on a basis of 2.20c. Importations are causing less concern than in past months. Awards this week totaled more than 400 tons and include 275 tons for the Rumbaugh department store at Everett to the Pacific Coast Steel Co. This project will be eight stories, A. D. Belanger holding the general contract. Northwest Steel Rolling Mills booked 130 tons involved in the Grimshaw garage, Seattle, also a small tonnage for the Phi Kappa Sigma fraternity house. New contracts pending include 150 tons for the spillway for the Cushman power plant for Tacoma. About 120 tons is pending for two state bridge jobs.

No large plate jobs are pending Mills quote 2.30c but it is no secret that desirable tonnages can be booked as low as 2.25c.

Structural awards this week totaled 300 tons, including 120 tons for the state bridge at Cle Elum placed with an unnamed eastern interest. Pacific Car & Foundry Co. is making repairs to two Northern Pacific railroad bridges near Darrington, involving 100 tons. Contract for the Nisqually viaduct, requiring 81 tons, will be awarded to a Seattle plant this week. Fabricating plants state inquiry is quiet. State highway commission is soon to advertise for bids for the Marblemont bridge, including several spans of a total of 601 feet. The amount of steel involved is not yet known.

Finished Materials

Business is fair with the jobbing houses, the turnover being on a par with last month. Everything out of stock is moving, although the lumber industry is not buying as much as usual. Demand from agricultural sections is improving. Prices of sheets have not been changed to correspond with new mill lists but there may be a revision soon.

Old Materials

This market is unchanged both as to steel and cast scrap. The movement of steel scrap is fairly active as the two local mills are constantly replenishing their stocks. Foundries are buying sparingly of cast iron scrap and prices vary with each sale.

Gabriel Snubber Co., Cleveland, is developing a hydraulic snubber for automobiles.

Pig Iron Prices Steady

(*Concluded from Page* 217)

were taken in southern Ohio and Indiana. Prices show a firmer tendency in outside territory, Cleveland makers doing $16.50, base, furnace, more frequently than $16.25, and on some nearby orders $16.75, base, applied. While $16.50 base, valley, was encountered during the week by a local seller in competitive territory, that price now is said to have disappeared. A few carloads were sold for delivery in Cleveland at $17.50, base, Cleveland furnace.

Cincinnati, July 24.—Signs of increased activity in pig iron have appeared in the local market. Sales in the past week aggregated about 8000 tons, 3500 tons of which were purchased by a Hamilton, O., company from a northern Ohio furnace. A maker of sanitary ware at Pittsburgh bought 2000 tons of southern foundry iron at $15.50, base, Birmingham, for delivery in August and September to its Louisville factory. Aside from an inquiry from a Fort Wayne, Ind., melter for 500 tons of foundry and another from a Dayton, O., company for 350 tons, pending business is confined to single carloads. Prices remain firm.

Chicago, July 24.—Coverage of pig iron for third quarter is well advanced, and some estimates are that not more than 30 to 35 per cent remains open. Two melters have closed for upward of 3000 tons of foundry iron. Quiet negotiations by buyers for tonnage feature the market. Inquiries now before the trade range from 500 to 1000 tons. Shipments this month, except Fourth of July week, averaged 20 to 25 per cent ahead of a year ago. The price of $17.50, base, Chicago furnace, holds for spot and future business. Sharp competition is shown for the small amount of silvery iron tonnage offered.

Some pig iron brought in by boat and ordinarily taking silicon differentials is being offered from local stockpiles at $17.50. Preliminary estimates of pig iron sales for July indicate the total for the seven months year will closely approximate the comparable period in 1926.

St. Louis, July 24.—The placing of small, scattered tonnages for prompt delivery constitutes the sum total of pig iron selling activity in this district. The amount booked during the week was 3000 tons. There has been some inquiry for fourth quarter iron. While many important industries are well supplied at the moment, considerable third quarter tonnages still to be bought. Prices are steady.

Birmingham, Ala., July 24.—No change is noted in the pig iron market. Furnace interests say sales will continue through the remainder of the year in small lots. Makers of cast iron pressure pipe, radiators and heavy machinery will be the largest consumers. These plants are near blast furnaces and can get delivery to suit them. The price continues $15.50, base, Birmingham.

Toronto, Ont., July 24.—Foundry and malleable pig iron sales still are above the average for the summer of 1927. Current demand is entirely for spot delivery, with individual sales running from 50 to 200 tons. The majority of consumers have sufficient stocks on hand for a few weeks. While there was some improvement in the output of pig iron in Canada in June, the greatest increase was in foundry iron, which advanced from 7667 tons in May to 25,968 tons in

Malleable Castings Off

Washington, July 24.—Production of malleable castings in June declined slightly from May, according to the department of commerce. Following are comparisons:

	Total tons produced	Per cent of capacity	Total tons booked	†Monthly capacity
1926				
Total	715,384	54.7	607,949	1,307,889
1927				
June	58,972	55.3	46,178	106,736
Total (6 mos.)	351,096	55.2	314,616	636,375
July	48,202	43.9	45,782	104,287
August	51,394	48.6	42,515	105,717
September	45,210	43.3	37,912	104,401
October	46,765	46.	39,494	101,606
November	40,845	40.5	34,624	100,778
December	47,876	47.6	49,215	100,685
Total (year)	631,388	50.4	564,158	1,253,849
1928				
January	54,818	59.6	53,153	92,015
February	59,045	63.8	55,452	92,498
March	63,322	69.6	60,697	91,043
April	56,880	62.5	53,099	91,019
May	61,458	67.3	54,429	91,296
June	61,230	64.6	52,108	94,719
Total (6 mos.)	356,753	64.6	328,938	552,590

†Capacity during 1927 has been based on following formula: "Total number of units of molding floor space times average production per molder per day per unit of floor space, times number of actual working days per month." Beginning January, 1928: "Average monthly production for the best six consecutive months since Jan. 1, 1919, is to be taken as a practical monthly capacity."

*Revised.

Order Less Steel Plate

Washington, July 24.—Bookings of fabricated steel plate in June dropped somewhat, statistics of the department of commerce show. June bookings totaled 34,278 tons compared with 42,376 tons in May. Following are further monthly comparisons:

	*Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1926 (year)	513,913	175,367	47,524	14,406	196,849
1927					
June	28,811	7,402	2,263	1,026	15,192
Total, 6 mos.	264,945	107,728	24,700	3,841	95,602
July	35,326	17,199	1,034	537	14,274
Aug.	48,577	29,691	3,504	481	11,385
Sept.	38,662	15,421	2,254	873	14,576
Oct.	47,090	18,648	3,252	385	11,599
Nov.	27,341	8,920	978	422	10,794
Dec.	35,648	13,367	3,490	385	13,088
Total (year)	497,697	210,974	39,212	6,924	171,318
1928					
Jan.	35,787	8,758	2,062	1,225	16,412
Feb.	49,820	25,532	3,679	143	15,420
March	46,840	25,226	1,897	699	14,683
April	50,347	22,095	4,654	619	16,265
May	42,376	14,849	4,636	202	17,768
June	34,278	11,280	3,225	778	15,803
Total, 6 mos.	259,448	110,083	20,153	3,666	97,351

*Revised

Pittsburgh Steelmaking May Pick Up

Pittsburgh, July 24.—Steelmaking here averages 70 to 75 per cent. The possibility is that this average will be increased instead of lowered. Pittsburgh Steel Co., because of a demand from its seamless tube constituent, has added another open hearth, giving it 7 out of 12 active. Pittsburgh Crucible Steel Co. has 10 out of 12 operating, and Butler, Pa., interest keeps 5 out of 10 on. Carnegie Steel Co. and Jones & Laughlin Steel Corp. are operating 75 to 80 per cent. Weirton Steel Co. continues to run practically full. At Farrell, Pa., Carnegie Steel Co. keeps 12 open-hearth furnaces in operation.

Jones & Laughlin Steel Earnings Increase

Pittsburgh, July 24.—Earnings of the Jones & Laughlin Steel Corp. showed a substantial improvement during the second quarter over the first three months and the corresponding 1927 period. Consolidated net income for the June quarter totaled $4,241,091 after depreciation, depletion and bond interest, compared with $2,903,457 in the previous quarter and $3,5676,079 in the 1927 period.

Net is equal after preferred dividends to $5.62 a share on 573,320 common shares, against $3.28 a share the previous quarter and $4.45 a share a year ago.

Net income for the half year amounted to $7,144,548, or $8.90 a share on the common, against $7,234,803, or $9.07 a share in the first six months of 1927.

Iron Ore

Consumption in June Lower Than in May—Higher Than in June 1927

Cleveland, July 24.—Consumption of Lake Superior iron ore in June exceeded that of June, 1927, by approximately 137,000 tons. The figure for last month, however, was 280,493 tons below that of May. Stocks at furnaces and Lake Erie docks July 1 were practically the same as on the same day last year. The Lake Superior Iron Ore association reports as follows:

	Tons
Ore consumed in May	4,947,768
Ore consumed in June	4,667,493
Decrease in June	280,275
Ore consumed in June 1927	4,530,565
Ore on hand at furnaces July 1, 1928	17,912,817
Ore on Lake Erie docks July 1, 1928	5,067,786
Total at furnaces and Lake Erie docks July 1, 1928	22,980,603
Total July 1, 1927	26,972,594

Entente Revises Fines for Overproduction

Washington, July 24.—Acting Commercial Attache Daniel J. Reagan, Paris, in a radiogram dated July 21, has officially confirmed that the continental steel entente has modified its original system of fines for overproduction. A fine of $1 per metric ton will be levied upon each ton of raw steel produced in excess of the specified quota of each individual country up to a tonnage amounting to 7.5 per cent of the allotted quota, from 7.5 per cent up to 10 per cent this fine becomes $2, and for all tonnages produced in excess of 10 per cent the old fine of $4 is to remain in force.

Should this revision be retroactive to Jan. 1, 1928, the fines assessed against the German industry will amount to $4,000,000 over the first 5 months of the year, an amount 3 times that actually paid in by this industry. This situation is compensated for, however, by an increase made in the German quota of from 275,000 tons to 300,000 tons monthly.

Valley Sheet Mills Up to 91 Per Cent

Youngstown, O., July 24.—Sheet mill operation in the Mahoning valley at 91 per cent this week represents a gain of two mills compared with schedules a week ago. Of the 127 hot mills in this district, 116 are engaged. Independent makers of steel have 39 to 53 open-hearth furnaces active, or 74 per cent, a gain of one furnace over last week. Other operations virtually are unchanged. Tin and strip mills are on a 100 per cent basis. Pipe and tube mill activity is at 60 per cent. Bar mill capacity is 65 per cent engaged.

Ore Discoverer Dies

Chicago, July 24.—David T. Adams, 69, pioneer of Minnesota iron mining fields and said to be the discoverer of the Mesabi range ore deposits, died July 22 at his home in this city. Following his discovery of the Mesabi deposit 35 years ago, Mr. Adams became associated with the Merritt interests, with which he remained many years.

Foster Aircraft Industry

New England industrialists, meeting at Boston recently, have united to encourage the production of airplanes and airplane parts. Many airports have been laid out and a number of plants are making parts. The Pratt & Whitney Co., Hartford, Conn., is now producing nearly 60 airplanes a month. The Bourdon Air Craft Corp., Hillsgrove, R. I., has started production on a land plane. The Pratt & Whitney Co., recently booked 115 engines for the Boeing Air Transport Co., Chicago, and has orders for $6,000,000 on its books.

Chicago Operations Down to 75 Per Cent

Chicago, July 24.—No evidence appears of pronounced decline in steelmaking operations here, although the rate has settled at 75 per cent due to further slight contraction in active open-hearth capacity and a dip in plate and heavy structural mill operations.

The number of steelworks blast furnace stacks in operation is unchanged at 25 out of 36. Illinois Steel Co. has 9 of its 12 stacks operating at Gary, 7 at South Chicago and 1 at Joliet. Inland Steel Co. has all four of its stacks and Youngstown Sheet & Tube Co. one in blast at Indiana Harbor. Wisconsin Steel Co. has its three blowing at South Chicago.

Rail mills continue at 60 per cent.

Otis Steel Net Higher

Net profits of the Otis Steel Co. for the first half totaled $1,743,066, against $929,544 a year ago. Total profits for all of last year amounted to $1,382,789.

Net for the second quarter amounted to $907,536, or 108 per cent greater than in the 1927 quarter. June earnings totaled $253,812, after charges, compared with $183,719 last year. Bookings for the company since July 1 have shown a sharp gain over the June figures. E. J. Kulas, president, expects business to continue more favorably than usual during July and August, with a further substantial recovery in early September.

Lighting Engineers Meet

The first world congress on illumination will be held in the United States during September. Tours of instruction have been arranged to Boston, New York, Washington, Cleveland and Niagara Falls. The congress also will attend conventions of the illuminating engineering society at Toronto, Sept. 17-20, and the international commission on illumination at Saranac Inn. New York, Sept. 22-28.

Sees Statistics as Big Help to Business

Practical application of current statistical information by American business men has been an outstanding factor in the generally-sustained prosperity of the last five years, declares Mortimer B. Lane, of the census bureau, department of commerce, in a study, "How to Use Current Business Statistics." This booklet may be obtained from the superintendent of documents, government printing office, Washington, for 15 cents. Because of the wide dissemination of business statistics the more or less violent fluctuations which have marred periods of similar commercial and industrial activity have been averted, according to Mr. Lane. In particular has the small business man, without the facilities of the larger business units, benefited from statistics made available by the department of commerce, business papers and other agencies.

Issue Distribution Booklet

A booklet containing the proceedings of the National Distribution Conference, held at the Waldorf-Astoria hotel, New York, June 28-9, has been published under the auspices of the Bolt, Nut and Rivet industry of the United States. The conference, held under the invitation of the Bolt, Nut and Rivet Manufacturers association, was described fully in the July 5 issue of IRON TRADE REVIEW.

Addresses by Charles M. Schwab and Gilbert H. Montague are reported in full in the booklet as is Charles J. Graham's, president of the Bolt and Nut manufacturers, outline of the distribution plan of his association.

Advance Rumley Tops '27

The Advance Rumley Co. reports business in the first six months this year 32 per cent ahead of the similar period last year, with June more than double June, 1927. July is running in excess of last year and all indications are the company will continue to do increasing business and will show a good profit, against loss after depreciation last year of $340,666. The company directors deny they are considering any merger with the J. I. Case Threshing Machine Co., Racine, Wis.

A permanent steam power plant engineering exhibit in the National Museum at Washington is planned by the Smithsonian institute.

Industrial Men in the Day's News

Arthur J. Tuscany, Appointed Secretary-Manager of the Gray Iron Institute

RESPONSIBILITY for the future success of this organization, still much in its infancy, rests on his shoulders.

HIS business experience embracing sales, sales promotion, advertising, purchasing and executive work, he is well equipped to fill his new position.

OUTDOOR sports appeal to him and he enjoys golfing and swimming, with an occasional hunting or fishing trip.

MOST of the responsibility for the future success of the Gray Iron institute will rest on the shoulders of Arthur J. Tuscany, chosen last week to be secretary-manager of that organization. The Gray Iron institute was launched formally at a meeting held in Philadelphia, May 18, following a conference of the leaders of the industry who met in Pittsburgh in March. The executive committee in its most recent meeting selected the new secretary-manager.

Mr. Tuscany was born at Cleveland, Aug. 1, 1893. His education was received in the public schools of that city. Later he took preparatory work and intensive training along business and mechanical engineering lines. His first employment was obtained with the Adams Express Co. at Cleveland. Later he became associated with Johns-Manville Corp. as secretary to the branch manager. He remained with this organization for nine years, during which time he became purchasing officer, salesman and field manager. He was made an assistant manager of the asbestos and magnesium department before he severed connections with the concern.

After acquiring invaluable experience with the Johns-Manville Corp., Mr. Tuscany became connected with the Post Tractor Co. For a year and a half he was sales manager, and upon the organization's merger with the Whitney Tractor Co., Cleveland, he became treasurer of the company and director of purchases. He was a director of the tractor company for three years.

May, 1928, marked the sixth year of Mr. Tuscany's connection with his most recent office, that of secretary-manager of the Ohio State Foundrymen's association. In 1922, when he took over that position, the organization possessed only 43 members and its financial condition was somewhat unstable. His work with the organization has been along the lines of compilation and dissemination of business information, inculcating better business practices, educational cost work and the various factors of insurance, compensation, welfare and other personal matters connected with the foundry organizations which make up the membership of the State association. Today, with over 200 members, the Ohio State Foundrymen's association is a financially solid group. Mr. Tuscany has resigned, to become effective Sept. 1 or before, the time of his departure depending on the completion of his work in connection with the coming convention.

Mr. Tuscany is a member of the American Society for Testing Materials and the American Foundrymen's association. He is fond of outdoor sports, being partial to golf, swimming and occasionally hunting and fishing. Mr. Tuscany lives in Cleveland and will have his headquarters in that city.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

AVERY V. ADAMS has resigned as manager of the tin plate division, Republic Iron & Steel Co., to become assistant to the president of the General Fireproofing Co., Youngstown, O., effective Aug. 1. A. R. Johnson, formerly Chicago representative of the Trumbull Steel Co. and at present in charge of the New York office of the Republic Co. will succeed Mr. Adams.

* * *

A. L. Luria, Luria Bros. & Co., Reading, Pa., sailed July 20 for a six-week trip to Europe.

* * *

Robert K. Morton, of the H. B. A. Steel Co. Inc., New York, sailed for Sweden, July 21.

* * *

E. Eckardt, treasurer Georgian Manganese Co., New York, is in Russia. He is expected to arrive back in this country late in August.

* * *

Mullin Wayne, treasurer of the Thatcher Furnace Co., Newark, N. J., is expected to return early in August from a trip to Europe.

* * *

T. M. Girdler, president of the Jones & Laughlin Steel Corp., Pittsburgh, has been elected a trustee of the Equitable Trust Co., New York.

* * *

Bengt Carlson, manager of the Chicago office of Sandvik Steel Inc., has returned to this country after a visit to Sweden.

* * *

Nils Enerstrom, of the Sandvik Steel Works, Sweden, is visiting the United States and is making his headquarters at Sandvik Steel Inc., 233 Broadway, New York.

* * *

Clarence Fyneut, formerly with the Summit Foundry Co., Geneva, N. Y., is now associated with the Ferro Enamel Supply Co., Cleveland, as a member of its service staff.

* * *

David J. Hanna has been made Detroit district sales manager for the Jessop Steel Co., Washington, Pa., with headquarters at 2208 Fort street west.

* * *

W. O. Renkin has been made manager of the industrial furnace department of Combustion Engineering Corp., New York, effective Aug. 1. Mr. Renkin has devoted the past 15 years to this particular field of engineering.

* * *

George D. Buckwell, for the past eight years Pittsburgh district manager for the M. A. Hanna Co., Cleveland, has become associated with the Sharpsville Furnace Co., with blast furnaces at Sharpsville, Pa., and Neville Island, Pa.

* * *

George E. Mills has become associated with Steel & Tubes Inc., Cleveland, in charge of advertising and sales promotion in a new department of that organization. Mr. Mills, for the past five years, has been secretary of the Cleveland Advertising club.

* * *

Thomas E. Dunn has been appointed works manager of the Bullard Machine Tool Co., Bridgeport, Conn., to succeed Stanley H. Bullard, vice president, who will devote his time to more general activities of the company. Mr. Dunn has been with the Bullard company since 1917.

* * *

W. S. Lynch has been made district manager at Cincinnati for the Chicago Pneumatic Tool Co., New York. Mr. Lynch succeeds T. G. Smallwood, who has taken an indefinite leave of absence due to ill health.

A. M. Andersen has been made district manager at Seattle for the Chicago company.

* * *

James A. Stader, formerly of the United States bureau of mines, has been appointed assistant to the president of the American Zinc institute, a position created recently. Mr. Stader, a graduate of the University of Missouri, Columbia, Mo., has worked as an engineer in various countries, including government service in the Philippines.

* * *

Grant B. Shipley, engineer of Pittsburgh, has been elected a director of the Mond Nickel Co. Ltd., of England and Canada. For some time, Mr. Shipley has been chairman of the board and president of the American Mond Nickel Co., the United States branch of the English company. Mr. Shipley also is president of the Century Wood Preserving Co., Pittsburgh.

* * *

Don Allshouse, South Bend, Ind., has become advertising manager of the Northern Equipment Co., Erie, Pa., manufacturer of a boiler feed control system and pump governors. For the last 18 months he has been associated with an advertising agency in South Bend and before that was connected with the publicity department of the Westinghouse Electric & Mfg. Co.

* * *

R. E. J. Summers, chief contracting engineer of the H. K. Ferguson Co., Cleveland, engineer and builder, has been appointed vice president in charge of contracts. Mr. Summers became associated with the Ferguson company in 1919, and has been assistant chief engineer, chief engineer and chief contracting engineer. He is a graduate of Cornell university, Ithaca, N. Y.

* * *

John A. Penton, chairman of the board of the Penton Publishing Co., and Harold F. Seymour, vice president of the Columbian Vise & Mfg. Co., both of Cleveland, have been appointed to committees of the United States chamber of commerce, Washington. Mr. Penton was placed on the advisory committee of the department of manufacture and Mr. Seymour on the advisory committee of the organization's foreign commerce department.

* * *

L. E. Griffith has been appointed sales manager of the Riley Stoker Corp., Worcester, Mass., to succeed William A. Pestell whose death was noted in IRON TRADE REVIEW, issue of July 19. Mr. Griffith is a graduate of Lafayette college, Easton, Pa. and since that time has been connected with the Thompson-Starrett Co., Babcock & Wilcox Co., United Machine & Mfg. Co. and the Riley Stoker Corp. Since the purchase by the Riley corporation of the United Machine & Mfg. Co., of which Mr. Griffith was president, he has been district man-

(*Concluded on Page* 238)

European Steel Trade Is Slower

British, French and German Industries Report Lack of Orders—Tin Plate Mills in Great Britain Decide on Two Compulsory Suspension Periods in Fall—Belgian Export Business Satisfactory

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, July 24.—(*By Cable*)—British steel business is quieter, recent inquiries from India having failed to develop orders. The position of the Welsh steelworks is improved by the higher prices charged for billets by continental mills. Germans are competing keenly for strip steel. The market for galvanized sheets is firmer. Tin plate trade is tapering downward and makers have adopted two compulsory suspension periods between August and November. Hadfields have obtained an order for 1000 tons of manganese steel rails for delivery to New South Wales.

The market for British pig iron also is restricted. Furnaces in the Middlesbrough district are curtailing output, and no revival is expected before fall.

A report from Paris states the iron and steel markets are quieter but firm, as various comptoirs are maintaining prices. From Berlin it is reported German export business is slower. Some tonnages of wire nails have been sold to Great Britain and America. Domestic trade is dull. Belgian export business is satisfactory.

Lower Imports Encourage British Steel Trade

BIRMINGHAM, England, July 13.—(*European Staff Service*)—The quarterly meeting held at Birmingham this week did practically nothing toward relieving the anxiety in iron and steel. Representatives were present from all the producing centers and the Welshmen were probably the most cheerful owing to the improved conditions of the tin plate trade. Even here, however, the position was a little obscure as the fall in price of tin has had the effect of holding up orders for tin plate. The overseas trade returns for the month give some encouragement as imports are still on the downward grade. It is known that the reduced buying of continental finished and semifinished steel has meant better business for home steelworks. In the galvanized sheet trade rather more inquiry has developed particularly from Central America and the West Indies and prices are steady at £13 10s 6d ($65) to £13 10s ($65.61). Reports from Swansea indicate that sales in that area are made at the higher figure. Tin plate demand is not as strong as it has been during the past few weeks due to the fall in tin prices.

Franc—2.78c

Slightly more activity is noticeable at those works producing structural steel, and some orders have been given out in connection with railways for bridge building and station reconstruction. For billets, the rerollers and producers of finished material generally now go to the British steelworks, and some firms especially in South Wales have very good orders for billets, bars, slabs etc. The basis price for billets is £6 ($29.16) per ton, but an increasing proportion charge £6 5s ($30.34), and in a case where the material was urgently needed £6 7s 6d ($30.98) has been paid. Wire rods are unobtainable from the Continent and English makers are charging £9 10s ($46.17) to £9 16s ($47.38). Continental competition is confined to a few lines, but in every case buying is on a small scale. A certain amount of material is still being landed at the ports, but

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 23	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$16.04	3 6 0*	$15.31	3 3 0	$15.31	3 3 0	$15.80	3 5 0
Basic	15.80	3 5 0	14.58	3 0 0	14.58	3 0 0	15.31	3 3 0
Basic-bessemer	16.77	3 9 0†	14.58	3 0 0	14.58	3 0 0	14.58	3 0 0
Hematite, Phosphorus 0.02-0.05	16.65	3 8 6	22.15	565*	.....	.....	17.01	3 10 0
SEMIFINISHED STEEL								
Billets	$29.16	6 0 0	$22.96	4 14 6	$22.96	4 14 6	$23.57	4 17 0
Wire rods	46.17	9 10 0	29.16	6 0 0	29.16	6 0 0	29.16	6 0 0
FINISHED STEEL								
Standard rails	$37.67	7 15 0	$30.98	6 7 6	$30.98	6 7 6	$30.98	6 7 6
Merchant bars	1.55c	7 2 6	1.25c	5 14 0	1.25c	5 14 0	1.23c	5 12 0
Structural shapes	1.60c	7 7 6	1.07c	4 17 0	1.07c	4 17 0	1.07c	4 17 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.39c	6 6 0	1.39c	6 6 0	1.41c	6 8 0
Sheets, black, 24 gage	2.17c	10 0 0	2.32c	10 11 0	2.32c	10 11 0	2.18c	9 18 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	1.24c	13 11 3	1.24c	13 11 3	2.92c	13 5 0
Bands and strips	2.22c	10 5 0	1.47c	6 14 0	1.47c	6 14 0	1.43c	6 10 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.56c	7 2 0
Galvanized wire, base	2.93c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.00c	9 2 0
Wire nails, base	2.39c	11 0 0	1.62c	7 7 6	1.62c	7 7 6	1.65c	7 10 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 6.80	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.04	3 6 0	$17.25	440(2)	$16.43	590	$18.62	78
Basic pig iron	15.80	3 5 0	18.62	475(1)	15.04	540	21.01	88
Furnace coke	3.16	0 13 0	5.88	150	5.15	185	5.13	21.50
Billets	29.16	6 0 0	22.15	565	24.65	885	28.88	121
Standard rails	1.74c	8 0 0	1.48c	820	1.43c	1,100	1.51c	140
Merchant bars	1.57c	7 5 0	1.23c	685	1.29c	995	1.52c	141
Shapes	1.71c	7 17 6	1.17c	650	1.17c	900	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6	1.51c	840	1.46c	1,125	1.71c	158
Sheets, black, 24 gage	2.28c	10 10 0	2.74c	1,520	2.44c	1,880	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.90c	13 7 6	3.42c	1,900	3.90c	3,000	3.78c	350
Plain wire	2.12c	9 15 0	1.71c	950	1.95c	1,500	2.48c	230
Bands and Strips	2.22c	10 5 0	1.40c	775	1.66c	1,275	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £21 10s 0d ($104.49) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

this is to a large extent deliveries on old contracts.

In the case of bar iron, which latterly has been coming in at about £6 10s ($31.59), a good deal of this material was used by Black Country makers of nuts and bolts. Shortage of supplies, however, has caused a jump in the price to £10 ($48.60) and this has sufficed to transfer the business to a Black Country mill willing to accept it at the same price. Makers of medium bars and marked bars are working more regularly than for some time.

Rolling stock makers find little doing at home and rely to a large extent on orders from foreign and colonial railways. Competition, however, is keen and the British manufacturers in every case have to fight for the orders against fierce Continental competition.

With regard to Continental prices, a meeting of the cartel has been called to reconsider the situation and it is just possible that the trade may revise its policy with regard to foreign contracts, although at present there is nothing to indicate that prices will give way.

Midland quotations for pig iron are weak, Northampton selling as low as £2 15s ($13.36) and Derbyshire £2 19s ($14.32). North Staffordshire which is a special brand of limited make is firm at £3 3s 6d ($15.42) while there is also a good demand for cold blast iron for the casting of rolls and mill machinery generally. The steelworks now require some renewal of plant and South Wales is a good customer for the small type of rolls used in the manufacture of tin plates.

Iron and steel makers in Scotland have been having a dull time, and most of the works are closing today for a prolonged holiday. They are hoping, however, that a good start will be made in August. Among the cargoes landed at Glasgow during the past week was that of 500 tons of pig iron from India.

Talk Cast Steel Group

Paris, July 5.—A further step has been taken in proposed formation of a cast steel syndicate in France. At a recent meeting, where 30 of the leading steel foundries were represented, the scheme was generally received with approbation, but a number of Franco-Belgian firms made certain reservations. Finally it was decided to organize a company for the thorough investigation of the question, without, however, committing the members to any particular action as regard the future.

British Export Prices on Lower Level

London, June 25.—(*European Staff Service*)—Board of Trade returns for May give average British export prices per gross ton for a number of iron and steel products. These are compiled from actual contracts made several months ago, and this accounts for the difference between these quotations and the base prices regularly quoted.

Compared with a year ago, prices in May were generally lower, except beams and rails. Compared with preceding month, prices for foundry pig iron and galvanized sheets were practically the same, rail prices were slightly higher, and other products were lower.

Foundry pig iron was 19s ($4.61) less than a year ago and the same as in April this year. Beams were £1 7s 7d ($6.69) more than a year ago and 13s 5d ($3.25) less than in April this year. Rails were £1 2s 7d ($5.48) more than a year ago and 14s 9d ($3.58) more than in April this year. Plates were 6s ($1.46) less than a year ago and 11s 3d ($2.73) less than in April this year. Black sheets were £1 18s 10d ($9.42) less than a year ago and 4s 3d ($1.03) less than in April this year.

May, 1928

	£	s	d	$
Foundry pig iron	3	13	1	17.72
Beams	9	16	0	47.53
Rails	9	5	9	45.04
Plates	9	15	2	47.33
Black sheets under ⅛-inch thick	12	1	9	58.62
Galvanized sheets	15	6	9	74.38
Tinplates	19	9	4	94.41

Belgian Exports Show Loss in April

Brussels, July 9.—Exports of steel products from Belgium and Luxemburg in April were 321,728 metric tons, against 458,377 tons in March, and exports of pig iron amounted to 9583 tons, against 11,971 tons in March. April exports consisted mainly of: Shapes, 51,446 tons; semi-finished steel, 48,500 tons; plates and sheets, 44,555 tons; wire, 20,649 tons; rails, 13,134 tons; hoops, 11,950 tons; wire nails and bolts, 10,759 tons.

Imports of pig iron into Belgium and Luxemburg in April were 36,769, compared with 43,612 tons, the record figure, in March. Imports of steel products into the union in April were the lowest for the year with 29,203 metric tons, as against 31,294 tons in March. The following table gives comparisons in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Steel	Pig iron	Steel
1925	27,095	15,860	8,060	242,325
1926	27,505	27,265	13,105	304,075
1927	31,760	27,715	11,350	387,415
1928				
Jan.	37,625	34,357	6,793	289,854
Feb.	40,293	37,481	7,952	401,502
March	43,612	31,294	11,971	458,377
April	36,769	29,203	9,583	325,728

British Society To Meet in Dusseldorf

The council of the British Institute of Metals has accepted an invitation from the Verein Deutsche Ingenieure and the Deutsche Gesellschaft fur Metallkunde to hold the 1929 autumn meeting of the institute in Germany. The meeting will be held in Dusseldorf and is expected to prove attractive not only to British members but also to members residing in continental countries. Previous meetings of the institute held in Ghent and Liege were well attended by continental members who often find it difficult to be present for meetings in the British Isles. This is the first time the institute has convened in Germany and the support of powerful German technical societies and of a large and enthusiastic German membership as well as the accessibility and metallurgical interest of Dusseldorf are factors expected to make the meeting a success.

French Coke Output Up

Paris, July 9.—Production of coke at the French collieries in May was 367,725 metric tons, compared with 360,446 tons in April. Imports of coke into France in May reached 526,593 metric tons, the highest tonnage since January, 1927, when imports amounted to 528,861 tons. The May figure compares with 482,575 metric tons in April. Imports included 345,150 tons from Germany, 126,012 tons from Belgium, 51,204 tons from Holland, and 4227 tons from Great Britain.

Exports of coke in May totaled 12,336 metric tons, against 22,689 tons in April, and went mostly to Switzerland, Italy, Belgium and Luxemburg. The following table gives comparisons in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1925	255,410	416,880	39,440
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928			
Jan.	357,475	473,018	25,840
Feb.	343,186	411,455	23,119
Mar.	369,360	445,656	15,324
Apr.	360,446	482,575	22,689
May	367,725	526,593	12,336

See Americans Close to British on Exports

DUSSELDORF, July 6.—(*European Staff Service*)—The quarterly meeting of the directing committee of the European steel entente was held at Dusseldorf, June 26. It was decided that the tonnage quota for the five big member countries shall remain fixed at an annual rate of 29,287,000 metric tons. This tonnage has remained the same since April 1, 1927. It had been expected in various quarters that this tonnage would be increased, but in view of the fact that at the time of the meeting it was felt that the activity which had prevailed during the spring showed signs of fatigue, it was decided that the quota should not be increased.

For the first time, the French have exceeded their quota for the second quarter of this year and will have to pay $4 per ton on the excess. It also was decided that no modification shall be made in the method of imposing fines. Consequently the German quota remains divided into two parts, one corresponding to the domestic and the other to the export market. Any excess sold on export markets will be taxed $4 per ton, while the excess sold on the domestic market will be taxed only $1. It is reported Belgium and Czecho-Slovakia had asked for an increase in their particular quotas, but dis-

cussion has been postponed until the next meeting.

It is reported that the question of the merger of the export agencies of the United States Steel Corp. and Bethlehem Steel Corp. was discussed. In certain quarters it is felt that this powerful organization may increase competition in European and overseas markets, and it also is believed that the new American export agency may work pretty closely in co-operation with certain British interests. This will serve as an incentive for the formation of an export selling syndicate including the members of the European steel entente, with regard to which negotiations have been carried on during the past two years, but recently have been interrupted.

With regard to the group of central European producers in Czecho-Slovakia, Austria, and Hungary, these three countries were represented in the entente as a whole. Since the Czecho-Slovakian works have exceeded their quota, the central European group requested that each country be allotted a specific tonnage, as this would facilitate adjustments between themselves. This was granted.

It was unanimously decided that the presidency of the entente, vacant since the death of M. Mayrisch, should be offered to M. Meyer, directing manager of the Arbed, who accepted.

At the meeting of the European rail makers' association, held in London at about the same time, it was decided no change should be made in the export price of steel rails, £6 7s 6d ($30.90) f.o.b. Antwerp. base.

French Exports Decline

Paris, July 9.—French exports of steel products in April amounted to 319,753 metric tons, against 377,351 tons in March, and 415,148 tons, the record figure, in February. The April tonnage is the lowest this year, mostly due to the fact that during that period the domestic market was sufficiently active and home prices sufficiently remunerative to cause producers to lose a little of their interest in export markets. Exports of pig iron in April were 46,499 metric tons, against 57,534 tons in March.

Imports of steel products into France during April were 10,348 metric tons, against 8913 tons in March, and imports of pig iron totaled 2864 tons, as compared with 4422 tons in March. The following table gives comparisons in metric tons:

	IMPORTS		EXPORTS	
Mon. ave	Pig iron	Steel	Pig iron	Steel
1925	2,693	11,703	58,835	272,270
1926	1,990	11,930	58,545	264,530
1927	3,230	6,490	69,640	363,305
1928				
Jan.	2,472	3,663	57,496	328,260
Feb.	5,246	7,548	49,515	415,148
Mar.	4,422	8,913	57,534	377,351
April	2,864	10,348	46,499	319,753

Link Australian Works

Washington, July 24.—What the Australian press proclaims to be a co-ordination of the steel industry, from the mining of iron ore to the selling of finished products, will be accomplished shortly if plans go through for the formation of the Australian Iron & Steel Co., to take over the Hoskins Iron & Steel Co. Ltd. This is reported to the department of commerce by Trade Commissioner Squire at Sydney.

Five more rolling mills, a galvanizing plant and other extensions to cost altogether £200,000 are contemplated by the Newcastle works of John Lysahts (Australia) Ltd.

French Markets Calmer and Nearer Normal

Office of IRON TRADE REVIEW,
9 Rue de Londres

PARIS, July 6.—(*European Staff Service*)—The French domestic market is calmer than for some time. However there still is a good current of orders and the works are well booked. The activity of the market is considered normal and satisfactory. A number of French works have reappeared on the export markets, due particularly to the fact that several furnaces have been restarted following the intense demand at the beginning of the year. It is felt, however, that these French works have arrived too late to take advantage of the high prices which were available in export markets a month ago.

(Franc—3.93c)

With regard to the level of prices in the home market, it is believed that the comptoirs now are sufficiently well established to maintain stabilization, and an incentive is afforded the industry by the adoption by the government of an important housing scheme. It is proposed that the government should lend money at a low interest to enable the building of houses for the workers and also apartment buildings which can be rented at a comparatively low figure. In view of the magnitude of the scheme a considerable demand is expected to gradually develop for steel.

Prices for semifinished steel and beams, as fixed by the comptoir, are unchanged. Plates are quoted at 800 to 820 francs ($31.45 and $32.15) per metric ton. Medium-sized sheets range from 850 to 870 francs ($33.30 to $34.10). The market for the lighter gages is satisfactory and prices are hardening, reaching as high as 1120 francs ($44). Negotiations in respect to formation of a plate and sheet syndicate have not yet materialized, and it is not expected that any definite result will come about before the end of the summer. There is medium activity in wire products, and although the price of wire rods has been increased by the syndicate, quotations for wire products have remained unchanged.

German Foreign Trade Balance Better in May

BERLIN, July 6.—(*European Staff Service*)—Although German exports of iron and steel in May were slightly less than in April, which month constituted a record for the current year, the favorable trade balance of these exports in May was greater than before. This resulted from the fact that imports experienced a considerable decline to 186,450 metric tons, as may be seen from the following table, giving imports and exports, in metric tons:

	Imports	Exports
Jan.	265,392	363,026
Feb.	240,324	390,776
March	248,335	334,798
April	246,411	412,810
May	186,450	398,470
Jan. to May, 1928	1,183,911	1,999,880
Jan. to May, 1927	996,077	2,098,870

Exports of pig iron in the first five months of this year aggregated only 87,599 metric tons, compared with 177,384 tons in the corresponding period a year ago, sales to the United Kingdom and the United States having particularly decreased. Pig iron export business at present is again experiencing competition from Belgium and Luxemburg, where the makers are in a position to offer at lower prices than the German steelmasters can quote. Sales of structural shapes to export markets also have decreased. Demand for plates has expanded, owing to the considerable requirements of the shipyards. The principal country of destination for bands and hoops was the United Kingdom, but fair tonnages also have been sold in the United States.

The first news concerning the formation of the steel export association of America has caused considerable comment among German producers, and the old idea of establishing selling agencies for various products by the European steel entente again has revived. It is doubtful, however, if under present circumstances the idea will materialize rapidily.

Domestic sales in Germany have decreased in activity, and specifications have come in slowly, so producers threatened to cancel unspecified quantities. The German shipyards, as well as the car makers and the building trade, are anxious to obtain new orders, but conditions now are rather dull. Producers have reduced their output of pig iron, raw steel, and semifinished products, and several blast furnaces have been blown out. Turnovers, so far as structural shapes are concerned, have been limited, but larger tonnages of merchant bars have been bought from abroad. Thin sheets have remained inactive as the question of syndicating this material has not yet been settled. A German concern, which up to the present has been producing glass, now has decided to manufacture wire rods, and its annual capacity is estimated at about 25,000 tons a year.

Men of Industry

(*Concluded from Page* 234)

ager of the New York office.

W. L. Schultz, for the past few years sales representative of the New York office of the Riley corporation, has been named to succeed Mr. Griffith as district manager.

* * *

Paul A. Ivy has been elected vice president of the National Cast Iron Pipe Co., Birmingham, Ala. Mr. Ivy is widely known as a cast iron manufacturer.

* * *

Alex L. Miltenberger, Pacific coast manager of the Wagner Electric Corp., with headquarters in San Francisco, has been transferred to the St. Louis branch office, to be district manager there. Mr. Miltenberger, a graduate of Columbia university, New York, entered the employ of the Wagner corporation in 1909.

Fred Johnson, in charge of the St. Louis sales office for the Wagner corporation, has been named manager of the Los Angeles branch office. Mr. Johnson had been district manager of the St. Louis territory for 21 years.

* * *

W. R. Hulbert, sales manager of the thermit department of the Metal & Thermit Corp., New York, has resigned to enter the firm of Thomas H. & Milan H. Hulbert, Chicago, Aug. 1. Mr. Hulbert was graduated from Columbia university in 1904 with the degree of mechanical engineer. He was then connected in succession with the Power & Mining Machinery Co., the Rand Drill Co., now the Ingersoll-Rand Co., and the Kobbe Co. of New York. While with the latter company he was managing editor of *Compressed Air*. In 1907 he entered the employ of the Goldschmidt Thermit Co. as assistant engineer. When the Metal & Thermit Corp. was formed in 1916 he was made sales manager of the Thermit department, a postion he has held since.

John B. Tinnon has been appointed to succeed Mr. Hulbert. Mr. Tinnon received his education at Vanderbilt university and entered the electric railway field in 1908 in the engineering department of the Chicago City railroad. He served as assistant engineer during rehabilitation of the property and in 1912 was appointed engineer of way of the Chicago & Joliet Electric railroad. In 1924 he became connected with the Metal & Thermit Corp. as manager of the rail welding department.

Union Ends Bituminous Coal Strike

When the policy committee of the United Mine Workers of America voted at Indianapolis, July 19, to authorize officers of various districts of the miners' union to negotiate wage scales that are "mutually satisfactory" with bituminous coal operators they in effect called off the bituminous coal strike dating back to April 1, 1927.

When the so-called Jacksonville or $7.50 per day wage scale terminated as of March 31, 1927, union operators in the central competitive field refused to renew it. The mine workers, headed by John L. Lewis, laid down a policy of adherence to the Jacksonville scale under all circumstances. Many union coal properties have been idle since; others have been reopened on an open shop basis on a wage scale lower than the Jacksonville agreement. The supply of bituminous coal has been ample and prices have shown little deviation.

Pressure for release from the Jacksonville scale came from the Illinois branch of the union. Negotiations between the operators and the union are under way. Ohio operators who have opened on an open-shop basis claim they will so continue.

Pipe Line Shop Welded but Field Riveted

In the article, "Seven-Mile Water Pipe Line in Longest Welded Carrier in East," which appeared on Page 1659 of the June 28 issue of IRON TRADE REVIEW, it was stated erroneously that the shop welded sections were joined together in the field by welding. Information now available reveals that the sections are riveted together. As stated in the original article, the pipe is made from two 30-foot plates bent into half cylinders and automatically arc welded together. To facilitate joining sections in the field, the plates are so sheared that the pipe diameter increases slightly from one end to the other, thereby permitting the small end of one section to fit into the large end of the next section. After the shop welding, the sections are tested hydraulically, after which they are drilled for rivets. In the field the lengths are laid, riveted and then calked.

Obituaries

ARTHUR DANFORTH, 43, a director of Oglebay, Norton & Co., Cleveland, and associated with the company for 24 years, died July 18 in that city. Mr. Danforth, for the past 15 years, had been in the sales department. He was educated in Cleveland schools and was a graduate of Oberlin college. He was a member of the Union club, Cleveland, and the Duquesne club, Pittsburgh.

* * *

Emil Eiselt, 47, works manager of the Standard Steel Car Co., Hammond, Ind., died July 11.

* * *

Charles H. Trowbridge, president, Duffy-Trowbridge Stove Mfg. Co., Hannibal, Mo., died at his home in that city, July 9.

* * *

James Wardell Thorp, 69, former steel company and bank official, died in Chicago, July 19. Mr. Thorp went to Chicago in 1871 where he was associated with his uncle in the North Chicago Rolling Mills Co., continuing in that association until after the consolidation of the mills with the Illinois Steel Co. Later he became president of the Calumet National Bank of South Chicago.

* * *

Edwin B. Katte, 56, chief engineer of electric traction on the New York Central railroad for the last 22 years and former vice president of the American Society of Mechanical Engineers, died at his home at Irvington-on-the-Hudson, N. Y., July 19, following a long illness. Mr. Katte was recognized as one of the most important engineers in America in the development of electric transportation on steam railroads and was an expert on the electrification of terminals. Born in St. Louis, he received a mechanical engineer's degree at Cornell university, Ithaca, N. Y., in 1893 and took a master's degree a year later. He joined the New York Central in 1898 as a draftsman. He was a fellow of the American Institute of Electrical Engineers, a member of the American Railway Engineering association and numerous other organizations. He was a former president of the New York Electrical society.

Flexible-Rope Drive Is Used on Lathes

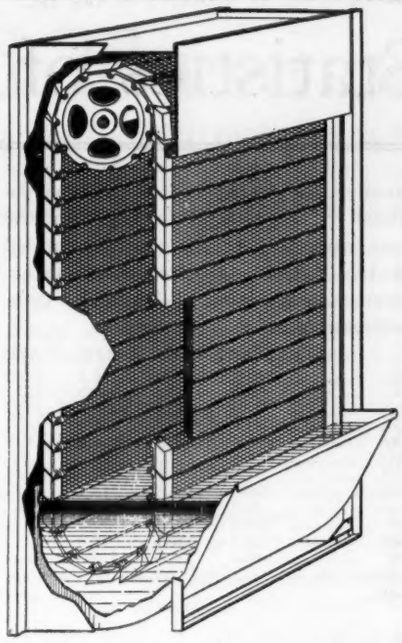
(*Concluded from Page* 205)

motor drive or motor drive through flat belt. The motor is mounted on a planed pad at the rear of the pedestal of the lathe and has a vertical adjustment to secure the proper tension of the belt. The new drive is designed to utilize a motor of not more than 900 revolutions per minute. A wire-mesh guard protects the pulleys and belts. Some of the advantages claimed for the flexible-rope drive are the elimination of the idler pulley used in a flat-belt drive; a smoother drive due to the belt being endless and of a more flexible nature; practical elimination of stretch and slip; absence of vibration; operation on short centers; and easy and inexpensive replacement when belts are worn out.

Double Pass Air Filter Is Self-Cleansing

No. 188

National Air Filter Co., Chicago, has recently introduced a new model double-pass air filter suitable for ventilating systems. The filtering medium, shown in the accompanying illustration, is the endless-curtain type with small units of multiple layers of woven copper ribbon and expanded metal passing over large supporting wheels at the top and through an oil cleaning bath at the bottom. This arrangement presents two walls through which air must pass, each being a filter. The whole curtain is encased in a sheet metal frame, 28 inches wide, 18 inches deep, and in various heights, depending upon the openings desired. Air entering through the first wall is accelerated due to the small openings in the filtering medium and meets the freshly oiled surfaces of the screen. Oil entrainment is claimed to be prevented, for the velocity of the air is lessened in the 10-inch gap between the two curtains, and any oil particles that may be carried along are dropped at the lowered velocity. Emersion in the oil reservoir cleans the filter since the dirt rests on a film of oil and is dislodged in the oil bath. As the dirt accumulates a sludge is formed which can be scraped out without disturbing the oil, this being necessary once or twice a year. Operation of the filter requires a few turns of the top roller each week. The device is built in sections which are interchangeable and can be used in multiple for large installations.



No. 188—Double-pass air filter

Eastern Scrap Dealers Forming Institute

New York, July 24.—The Institute of Scrap Iron and Steel is being organized to take over the program of and supplant the Eastern Scrap Iron association, formed about three months ago. This step was decided upon at a recent meeting of the executive committee of the association.

It is proposed to have the institute function along the lines of the American Iron and Steel institute and other similar organizations and have for its aim the elimination of waste and of unfair and unprofitable business practice; also, the promotion of an educational program on specifications and operating costs among other features of its work.

Eleven chapters will be organized in principal eastern cities. These chapters will have their own officers and be located in New York; Newark, N. J.; Jersey City, N. J.; Buffalo; Boston; Hartford, Conn.; Philadelphia; Syracuse, N. Y.; Reading, Pa.; Pittsburgh; and Baltimore.

Chief officers of the institute will be the same as those appointed to head the Eastern Scrap Iron association, with Benjamin Schwartz, 1512 Walnut street, Philadelphia, director general, and Joseph G. Hitner, of Henry A. Hitner's Sons Co., Philadelphia, president.

Other officers are J. V. S. Bishop, of Bishop & Co., Philadelphia, first vice president; David Strauss, Continental Iron & Steel Co., New York, second vice president; Ben Cohen, of Louis Cohen & Son, Wilkes-Barre, Pa., and New York, third vice president; Stanton L. Dreifus, of S. Snyder Corp., Rochester, N. Y., and New York, fourth vice president; and David, Pollock, of Mayer Pollock, Pottstown, Pa., fifth vice president.

Herman Moskowitz, of M. Samuel & Sons, Inc., New York and Brooklyn, is secretary; and Thomas F. Kelly, Brooklyn, treasurer.

Mystic For New England Rate Revision

Boston, July 24.—The Mystic Iron Works has filed a petition with the interstate commerce commission, Washington, directed against the New York, New Haven & Hartford railroad but including all other New England railroads, seeking a revision of alleged excessive and discriminatory rates on pig iron and asking reparation to the extent of the difference between rates actually paid and those rates which may be found reasonable by the commission.

It is pointed out in the petition that the Mystic Iron Works was started with an expense of several million dollars and has been running at capacity since its stack was blown in. The management contends that the plant was built on assurance of the New Haven railroad that freight rates on pig iron would be reduced. Not only has the New Haven failed to carry out its agreement to reduce rates applicable to the Mystic Iron Works products, according to officials of the latter company, but it also has established a rate of $2 per gross ton on competitive pig iron ex-barge from Albany and Beacon, N. Y., to New England states, which is lower than rates imposed upon pig iron traffic of the Mystic blast furnaces.

These ex-barge rates, it is contended, are unduly differential to the Mystic company's many competitors, with blast furnaces located at Buffalo and other points in New York state. Meanwhile the Mystic Iron Works has been paying wartime mileage rates on New England roads. The effect of the establishment by the New Haven railroad of the $2 rate from Beacon, N. Y., has been to give to the Buffalo furnaces an additional competitive advantage of $1.13 a ton.

Harvard Engineering school, Cambridge, Mass., has reprinted a paper by Albert Sauveur on the Widmanstatten structure of iron alloys, to make it more widely available. The paper explains in considerable detail the effects of various cooling cycles on austenite. It is illustrated with typical photomicrographs.

Current Statistics of Industry

June Castings Orders Take Drop

Washington, July 24.—Commercial steel castings orders in June declined somewhat from the May total, statistics of the department of commerce show. Monthly comparisons follow:

	BOOKINGS		PRODUCTION	
Total	†Total net tons	Railway specialties	†Total net tons	Railway specialties
1926	1,035,778	404,945	1,135,955	427,016
1927				
June	90,898	39,455	87,767	34,596
Total, 6 mos.	537,189	230,176	548,223	219,612
July	74,246	31,011	79,726	32,576
Aug.	63,528	21,144	87,004	32,397
Sept.	52,351	18,396	70,024	25,618
Oct.	51,748	16,625	62,409	21,947
Nov.	62,683	27,639	58,997	19,146
Dec.	76,953	39,112	58,220	19,358
Total	918,698	384,103	964,603	370,654
1928				
Jan.	91,072	41,276	74,082	28,714
Feb.	90,677	41,096	87,323	37,719
March	83,285	30,992	93,521	38,448
April	83,737	32,810	85,669	32,619
May	*86,414	34,995	*92,948	36,599
June	70,762	22,597	90,202	30,742
Total 5 mos.	433,595	181,128	432,233	174,858

†For tonnage of miscellaneous castings deduct Railway Specialties from this total.
*Revised.

Auto Output Is Down

Washington, July 24.—Automobile production in June took a drop, statistics of the department of commerce show, reaching the lowest mark since February. Comparisons follow:

		United States Passenger		Canada†
1926	Total	cars	Trucks	Total
Total	4,298,802	3,808,753	490,049	204,550
1927				
June	321,969	278,729	43,238	19,208
Total, 6 mos.	2,068,974	1,802,620	266,354	126,181
July	268,485	236,868	31,617	10,987
Aug.	308,826	274,381	34,445	12,526
Sept.	260,387	226,443	33,944	11,262
Oct.	219,719	183,042	36,677	7,791
Nov.	134,416	109,758	24,658	6,617
Dec.	133,579	106,080	27,499	8,435
Total	3,394,386	2,939,192	455,194	*178,799
1928				
Jan.	231,693	205,576	26,117	8,463
Feb.	323,809	291,151	32,658	12,504
March	413,379	371,821	41,558	17,478
April	410,189	364,877	45,312	*24,211
May	*426,096	*375,863	*50,233	33,942
June	396,714	356,439	40,275	(1)
Total 6 mos.	2,201,880	1,965,727	236,153	(1)

†Reported by Dominion bureau of statistics.
*Figures revised and corrected to date.
(1)Not available

Foundry Orders Decline

Cleveland, July 24.—Following the exetremely heavy month of May, foundry equipment orders in June declined to the normal average for the year, according to the report compiled by the Foundry Equipment Manufacturers' association. Further comparisons follow:

	1925	1926	1927	1928
Jan.	104.2	168.2	180.4	132.7
Feb.	108.8	154.9	198.0	123.6
Mar.	159.3	157.3	131.1	138.6
Apr.	124.3	113.2	130.0	107.7
May	113.3	128.5	134.8	335.6
June	110.5	133.5	138.4	149.1
July	117.0	127.3	89.9	.....
Aug.	190.0	141.2	106.4	.....
Sept.	94.2	114.0	80.4	.....
Oct.	149.5	140.5	98.0	.....
Nov.	180.3	133.4	95.8	.....
Dec.	140.1	181.0	106.8	.....

Base: Average monthly shipments for 1922-23-24.

Wholesale Iron and Steel Price Index Down

Washington, July 24.—June wholesale price index for iron and steel is given as 94.2, compared with 94.8 for May and 96.1 for June, 1927, taking 1926 as 100, according to the department of labor.

June index for nonferrous metals was 92.8, compared with 92 for May and 90 for last June, while the wholesale price index number for June for "metals and metal products" was 98.7, compared with 98.6 for May and 98.2 for June of last year.

"Other metal products" index number for June was 96.9, compared with 96.9 for May and 100.6 for June of last year. The June index for structural steel was 94.5, compared with 95.8 for May and 94.5 for June, 1927.

Babbitt Consumption Up

Washington, July 24.—Total apparent consumption of babbitt metal in June was 4,731,023 pounds, according to the department of commerce. This was an increase over May. Comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1927			
June	4,854,653	4,024,810	829,843
Tot. (6 mos.)	31,130,692	24,886,277	6,244,415
July	4,604,786	3,162,325	1,442,161
August	5,496,659	4,488,895	1,007,764
September	4,792,367	4,116,525	675,842
October	5,115,598	3,860,239	1,255,359
November	4,505,954	3,320,205	1,185,749
December	4,465,787	3,169,493	1,296,294
Total, 1927	60,111,843	47,003,959	13,107,884
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
April	4,842,656	3,724,691	1,117,965
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
Tot. (6 mos.)	28,507,097	22,309,577	6,197,520

Steel Barrel Production at Record High

Washington, July 24.—Steel barrel production in June reached the highest mark it has been for over a year, totaling 712,779 units, according to statistics received from the department of commerce. Production of barrels in May totaled 696,281 units. Following are monthly comparisons:

			Unfilled orders for delivery	
1927	Production	Shipments	within 30 days	beyond 30 days
June	594,782	605,123	232,468	966,371
Total (6 mos.)	3,391,751	3,387,447	.....	.....
July	578,223	576,602	308,789	1,037,899
Aug.	615,152	610,454	244,518	862,086
Sept.	521,899	525,374	235,181	889,256
Oct.	578,408	572,893	211,665	788,894
Nov.	500,909	497,345	182,065	633,724
Dec.	444,227	454,638	221,897	1,086,468
1928				
Jan.	475,906	474,159	241,145	1,110,652
Feb.	518,944	514,362	297,889	1,119,738
Mar.	636,855	644,521	304,043	1,039,540
Apr.	667,827	661,949	357,131	919,863
May	696,281	694,843	324,549	932,568
June	712,779	717,496	319,443	840,313
Total (6 mos.)	3,708,592	3,707,434	.....	.....

Structural Orders Off

Washington, July 24.—Orders placed in June for fabricated structural steel declined from May, department of commerce figures indicate. Comparisons follow:

	Actual tonnage	Per cent of capacity	Computed tonnage	Shipments computed
Total 1926	.....	67	2,890,800	3,218,400
June	187,147	61	228,750	258,750
Total 6 mos.	.....	62	1,395,000	1,342,500
July	280,613	92	345,000	258,750
Aug.	223,620	73	273,750	285,000
Sept.	217,109	71	262,250	270,000
Oct.	236,710	77	288,750	251,250
Nov.	193,850	63	236,250	247,500
Dec.	215,724	70	262,500	240,000
Total	.....	68	3,063,500	2,895,000
1928				
Jan.	*172,270	56	210,000	210,000
Feb.	*216,234	71	266,250	236,250
March	*210,565	69	258,750	228,750
April	*192,923	63	236,250	240,000
May	*251,448	84	315,000	266,250
June	**233,775	81	303,750	270,000
Total, 6 mos.	.....	71	1,586,250	1,455,500

*Revised
**Reported by 196 firms with a capacity of 289,430 tons.

Business of the Truscon Steel Co., Youngstown, O., at its Hydraulic Steel branch in Cleveland has doubled since the plant was acquired at receiver's sale, according to Julius Kahn, president.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

LEBANON IRON CO., Lebanon, Pa., is to purchase the Scranton Bolt & Nut Co., Scranton, Pa. It is stated that terms of purchase have been arranged but no further details are being divulged at this time. Charles Hart, president of the Delaware River Steel Co., who, since the death of William C. Sproull, a large stockholder in the Lebanon Iron Co., has been an active figure in that company, is understood to be the leading figure in the transaction which now awaits conclusion.

* * *

CRESCENT MFG. CO., Fremont, O., has been purchased by F. Nagel, its manager, who contemplates incorporating this fall.

* * *

JEAN GIFFOUL FOUNDRY, manufacturer of brass and bronze castings, has removed to a new plant at 10-12 Mary street, Newark, N. J.

* * *

STANARD SAW MILL MACHINE CO., Erie, Pa., is working, among other orders, on five complete saw mill units to be exported to Poland.

* * *

CAMDEN FORGE CO., Camden, N. J., has added to its other products a line of fittings, forged from chrome steel, for use in nitric acid and other acid tanks.

* * *

JAMES T. CASTLE, engineer, Pittsburgh, has recently sold water-tube boilers to the Pittsburgh Coal Co., Canfield Oil Co. and borough of Etna, Pa.

* * *

JOHN MERTZ MFG. CO., Sandusky, O., specializes in custom sheet metal products such as blow piping, exhaust systems, conveyors and complete ventilating systems.

* * *

STAR PRODUCTS INC., Cleveland, formerly the Star Products & Machine Co., is now making a mushroom type tappett in addition to its general line of automotive parts.

* * *

MANUFACTURERS' association of Hartford county, Hartford, Conn., at a recent meeting elected the following officers: President, Arthur D. Coffin, president and treasurer C. H. Dexter & Sons Inc., Windsor Locks; first vice president, Clayton R. Burt, vice president and general manager, Pratt & Whitney Co., Hartford; and second vice president, George E. Bean, general manager Vulcan Iron Works, New Britain, Conn.

* * *

T E. BISSELL & CO. LTD., Elora, Ont., has been organized to take over the plant and business of Bissel & Co., manufacturer of farm implements and similar products.

* * *

ARMOR ELECTRIC MFG. CO., Erie, Pa., is making a full line of motors from ¼ to 150 horsepower. It is buying castings for the housings but is manufacturing other parts in its own plant.

* * *

A O. SMITH CORP., Milwaukee, is practically doubling the capacity of its pipe shop as a result of receipt of heavy orders for electrically-welded oil and gas line pipe. E. W. Burgess is chief construction engineer.

* * *

CHISHOLM-MOORE MFG. CO., Cleveland, manufacturer of conveying equipment, has moved its New York offices from 30 Church street to Room 2610, Grand Central Terminal building. A. Kreh is in charge.

* * *

GIBBY FOUNDRY CO., iron and brass castings, East Boston, Mass., has about completed repairs to its foundry, which was burned last February, and expects to be operating Aug. 1.

* * *

HER-BORN ENGINEERING & MFG. CO., Sandusky, O., is bringing out a new continuous flow plaster mixer to be used for dry, semifluid or fluid mixers and materials.

* * *

KEARNEY & TRECKER CORP., Milwaukee, maker of milling machinery, finds a large addition erected last fall inadequate to meet demands and is beginning work this month on another addition.

* * *

L S. STARRETT CO., Athol, Mass., has placed on the market a line of high-speed hacksaw blades for use in cutting monel metal and chrome vanadium steel, stainless steels, high-speed tool steel and other alloy steels. This company also has placed on the market micrometers with interchangeable anvils, giving them a range from zero to 36 inches, and measuring tape made of stainless steel.

* * *

OHIO NUT & BOLT CO., Berea, O., recently elected officers as follows: President and treasurer, R. J. Whelan; vice president, H. G. Wilkinson, and secretary, R. A. Crawford.

* * *

ULSTER IRON WORKS, with headquarters at 52 Vanderbilt avenue, New York, and plant at Dover, N. J., has added to its line of products a full assortment of wrought iron rivets for ship work.

* * *

WAUKESHA MOTOR CO., Waukesha, Wis., of which S. A. Perkins is chairman and H. L. Horning is president and chief engineer, has started work on the first unit of its expansion program, to cost $600,000.

* * *

AMERICAN METAL PRODUCTS CO., Milwaukee, making chiefly a copper-aluminum alloy with a high iron content, has completed an addition and installed new furnaces, cranes and pouring devices. C. J. Zaiser is president.

* * *

FERRO ENAMEL SUPPLY CO., Cleveland, has added a business development department, in charge of F. A. Close. The company is installing a large continuous enameling furnace for the Detroit Michigan Stove Co., Detroit.

* * *

SMITH PATTERN & MACHINE WORKS, Sandusky, O., is now operating the latest type universal wood milling machine for cutting worm gears and worm patterns such as are used on steam shovels. An aluminum foundry is now operated in connection.

* * *

DAVID H. SMITH & SONS INC., Brooklyn, N. Y., are marketing steel fire-escape steps which are formed in one piece from steel plates. This company, which recently handled the sale of combination cutting, punching, shearing and coping machines manufactured by R. Sonntag, in Germany, now controls the sale of

these machines throughout the United States.

* * *

NAGLE MACHINERY CO., Erie, Pa., recently bought the business of the Allen Machine Co. at a bankruptcy sale and is proceeding with the latter's business of building rubber working machinery. W. M. Jones is manager.

* * *

SCHAAF RAZOR BLADE CO., Fremont, O., recently organized, is manufacturing a new safety razor blade. P. E. Schaaf, president and general manager, was one of the founders of the Henkle Co., Fremont, O.

* * *

FLINN & DREFFEIN CO., engineers, Chicago, have taken a contract to install one of their 22-ton continuous billet heating furnaces at the Riverdale, Ill., plant of the Acme Steel Co. The furnace is to be fired by producer gas. Installation is to be completed in the early fall.

* * *

PORT HENRY IRON ORE CO., Port Henry, N. Y., has filed a certificate in the office of the secretary of New York state increasing the number of shares of its capital stock by authorizing the issue of 10,000 shares no par value, with 10,000 shares $100 par value remaining the same as heretofore.

* * *

ROWLAND ADVERTISING AGENCY, Bridgeport, Conn., has been merged with Alfred D. Guion & Co., advertising agency, also of Bridgeport, making the latter the only agency in Bridgeport. Alfred D. Guion, president of the company, formerly was connected with the Bridgeport Brass Co.

* * *

PERFECT CIRCLE CO., which recently consolidated with the General Piston Ring Co., Tipton, Ind., and will have its headquarters at Hagerstown, Ind., has elected officers as follows: President, Charles H. Teetor; first vice president, Ralph Teetor; second vice president, Lotnair Teetor; secretary, Lewis S. Bowman; and treasurer, Ray Teetor.

* * *

COSTELLO ENGINEERING CO., Pittsburgh, has booked orders for two of its patented continuous pair furnaces equipped with metallic recuperators for Inland Steel Co., Indiana Harbor, Ind.; one car-type annealing furnace equipped with full automatic control for Monroe Steel Castings Co., Monroe, Mich.; and all the furnaces for the new addition to the Park works of the Pittsburgh Crucible Steel Co., Pittsburgh, comprising sheet furnaces, pair furnaces, and double-chamber box annealers.

* * *

UNION CARBIDE & CARBON CORP., New York, has entered into an agreement whereby it will acquire all of the common stock of the Acheson Graphite Corp. in exchange for its own shares. It is stated that the management and policies of the Acheson corporation will be little changed but a more aggressive sales policy will be adopted.

* * *

ALAN WOOD IRON & STEEL CO., Widener building, Philadelphia, recently increased the range of its floor plate by making this product in sheet gages. This material is produced in 12 and 14 gages and up to any thickness desired. The company now is able to furnish floor plate for all-steel road crossings provided with patented features which permit adequate insulation of railroad signal devices.

* * *

ST. JOHN IRON WORKS, St. John, N. B., has been purchased by James Playfair and Frank M. Ross, owners of the St. John Dry Dock & Shipbuilding Co. Ltd. George M. Warning, at present connected with the Union Foundry & Machine Works Ltd., will be manager. The Playfair-Ross interests will concentrate their mill and industrial work in their newly acquired iron works plant and reserve the drydock plant for marine and structural work.

* * *

ARNOLD NIPPLE CO., manufacturer of pipe and fittings, 2850 Lincoln avenue, Chicago, has purchased the building and ground formerly occupied by the Elsmere Mfg. Co., 2251 Knox avenue, Chicago. The plant building, which was damaged by fire some time ago, will be remodeled and fitted for occupancy by the new owner by about Sept. 1. About 10,000 square feet of floor space will be provided. E. H. Schoeffling is president of the Arnold Nipple Co. and R. G. Schoeffling is general manager.

* * *

OTTAWA SANDS CORP., recently organized with $500,000 capital as a division of the Material Service Corp., Conway building, Chicago, will complete a modern plant for producing steel molding sand in the Ottawa, Ill., district, Sept. 1. Henry Crown, president of the Material Service Corp., is also head of the new corporation. A. B. Hewson, formerly vice president of the Ottawa Silica Molding Sand Co., will be in charge of sales. A 2½-yard shovel, 4-yard steam shovel and rock crusher already have been purchased. Later sand will be produced for the glass industry.

* * *

TRI-CITY STEEL & SUPPLY CO. has been organized in Rock Island, Ill., and has opened a warehouse for the distribution of rolled bars, shapes and plates, cold finished steel bars and shafting in addition to other steel products. Officers of the company are: President, C. R. Hesler; vice president, F. W. Black; secretary, G. W. Baldwin; and assistant secretary, E. A. Hesler. Mr. Hesler, the president, was connected with the Republic Iron & Steel Co., Chicago office, from 1905 to 1916. He also represented La Salle Steel Co., Chicago, in southern Illinois, Iowa, Nebraska and Missouri as sales manager.

* * *

CENTRAL IRON & STEEL CO., Harrisburg, Pa., recently increased the range of sizes of its floor plate. Where formerly the company produced floor plate up to ¾-inch thick, it now produces it up to 2 inches thick. The company has installed additional facilities for furnishing plates in partially fabricated stages where customers are not prepared to do all of the work at their own plants. At the recent railway exhibition at Atlantic City, N. J., the company exhibited numerous stamped and formed plate products. These included parts for large casters, automobile fan blade holders, large washers, stake holders for freight cars, manifold heads for automobile motors, engine hangers for Ford motors, heads for household heating boilers, loom heads for textile mills, etc.

* * *

COLONIAL STEEL CO., Pittsburgh, has opened a branch warehouse at 825 Santa Fe avenue, Los Angeles, to carry a full line of high speed, oil hardening and carbon tool steels and to be in charge of A. J. Hede as district manager. This office will service the tool steel and drill steel trade west of the mountain territory now handled from the Salt Lake City, Utah, branch of the Colonial company.

* * *

GEO. R. BORRMANN STEEL CO., Oakland, Calif., has purchased the buildings, equipment and entire stock of steel, approximately 1200 tons, of the Republic Steel Co., 733 Brannan street, San Francisco, and will operate the plant under the name of Geo. R. Borrmann Steel Co. This purchase places the company among the largest distributors of steel products on the Pacific coast.

Machinery

Business Softens Somewhat in East but Still Is Good—Central West Demand Continues Unabated with Deliveries Becoming Slower

DESPITE some let-ups in buying in certain machine tool and shop equipment markets, activity continues at a good rate and July undoubtedly will stack up as one of the good months of the year. Momentarily, purchasing has slowed up in the East, although Wright Aeronautical Co. and General Electric Co. are consistent heavy buyers. Westinghouse Electric & Mfg. Co. has made further commitments against its third quarter list. Business is extremely brick in the Chicago territory where farm equipment makers, the railroads and general manufacturing all are active. One tractor plant is said to have taken $200,000 of special machines in the past five weeks. In the Central West, unfilled orders are mounting daily, stocks are reduced and deliveries slower.

New York, July 24.—The past few days have seen a slight let-up in machine tool demand, although the market is still far from dull. Leading buyers continue to include the Wright Aeronautical Co., Paterson, N. J., and General Electric Co., this latter company buying for both Schenectady, N. Y. and Erie, Pa. As a result of purchases by these two companies, some sellers here are having one of the best months this year. Railroad buying remains flat, with little outstanding in the way of fresh inquiry. Crane buying here is featured by slightly improved inquiry and a larger number of orders, although the general situation is far from active. Orders recently booked by Niles Tool Works include a 90-inch journal turning lathe, a 35,000-pound double frame steam hammer and a 18-inch slotter. Pratt & Whitney Co. has closed on several machines including three 9½-foot and one 13-foot deep hole driller, a 6-inch and a 12-inch vertical shaper, two jig borers, a 13 by 30-inch and a 16 by 36-inch engine lathe and a 2-spindle drilling machine. Brown & Sharpe Mfg. Co. has booked, through the Niles company, a wire feed screw machine, a universal grinder and a surface grinder.

Pittsburgh, July 24.—Further purchases have been made by Westinghouse Electric & Mfg. Co. above those noted last week, so that progress upon its third quarter list has been made during a month which is usually dull and uneventful among the machine tool dealers. Other inquiries are for single items of needed equipment but are fairly numerous, as are sales of that character, comprising scattered single tool orders. McClintic-Marshall Co. is expected to place its crane order momentarily for two 30-ton cranes and four smaller ones. A few single crane inquiries are out. No action has yet been taken in connection with a new western plant for a West Virginia steel interest, whose crane inquiry is in the preliminary stages.

Chicago, July 24.—Unfilled orders for machine tools are growing in volume and unusually good inquiry for this season is before dealers. Most dealers are finding that July business is holding to the active June volume. Southern Pacific has purchased a 30-inch lathe in this territory for delivery on the Pacific coast, and Texas & New Orleans, has awarded a hydraulic spring testing machine for its New Orleans shops. It is understood Missouri, Kansas & Texas and Southern Pacific will buy additional tools, but bids will be received in Kansas City or St. Louis. Great Northern has an inquiry out in this market for three hydraulic spring shop machines and several other items. In addition to previous inquiries, Burlington is asking bids on a 75-ton rod and driving box press. It is understood Universal Portland Cement Co. will buy two or three lathes and several shapers for its Buffington, Ind. works. Illinois Steel Co. is in the market for three plate shears and other equipment. Punch press equipment is going well among industrial users, one dealer having sold about 15 this month. Others report good buying of lathes and milling machines, and several 20-inch shapers were placed. Miehle Printing Press & Mfg. Co., Chicago, is in the market for machine tool equipment. Tractor divisions of implement works in this territory continue active in the market, one of these manufacturers having placed more than $200,000 worth of special machines in the past five weeks. Machine tool builders are finding their stocks reduced and in some lines they are taxed in making early deliveries. More evidence is seen of prompt closing on inquiries by buyers.

Worcester, Mass., July 24.—The machine tool market shows slight improvement both as to new buying and inquiry. While there is an absence of large lists pending, sales of individual tools cover a wide range and are fairly numerous. The automotive industry is taking a good volume for this period, largely production units and lathes. Grinding machinery holds well and is in the lead in producing new tools which are going into a broader field continually. Machine shop business is fair and demand for parts is also good.

Cleveland, July 24.—Activity in this market is not quite as strong as during the past few weeks. Few large buyers are apparent with the exception of certain automobile interests in the Detroit area. A number of inquiries are outstanding, although these mostly are for one or two tools. One manufacturer of turret lathes is well booked up and is operating its plant overtime. Shipments on certain models are slowed up somewhat. Sales are fairly general with a number of units for export, principally for France, England and Scandinavia.

CRANE ORDERS PLACED

Four 10-ton electric overhead cranes for Pennsylvania railroad, two for warehouses at Philadelphia and two for warehouses at Kearny, N. J.; awarded, contract reported going to Milwaukee Electric Crane & Mfg. Co.

Three crawler cranes, including two 1-yard ditcher cranes and one 10-ton crane equipped with boom, for Wilcox & Stutz, Brooklyn, N. Y.; to Harnischfeger Corp.

Two 3-ton electric hoists for F. G. Schaefer Iron Works, Edgewater, N. J.; to Box Crane & Hoist Corp.

Among single orders were: Crawler crane for George Flynn Corp., New York, to Industrial-Brown Hoist Corp; crawler crane for Arthur Johnson Corp., New York, reported placed with Koehring Co.; 3-ton handpower crane for Panama Canal commission, Washington, to New Jersey Foundry & Machine Co.; 40-ton electric crane with 2-ton auxiliary for United States Smelting & Refining Co., New York, to Shaw Crane-Putnam Machine Co.; 5-ton crane for Gulf Refining Co., New York, for installation at Fox Point, R. I., to Box Crane & Hoist Corp.; 10-ton handpower crane for J. G. White Engineering Corp., New York, to Whiting Corp.; 4-ton electric overhead crane for Mechanicsville, N. Y. plant of West Virginia Pulp & Paper Co., New York, to Shaw Crane-Putnam Machine Co., this latter is in addition to two or three cranes recently noted as booked for the company's plant in Covington, Va.; 15-ton electric crane with 5-ton auxiliary for unstated buyer, to Niles Crane Corp.

CRANE ORDERS PENDING

Locomotive crane equipment for Rosenthal Engineering Corp., New York; inquiries expected out shortly.

Two 30-ton cranes with four smaller size cranes for McClintic-Marshall Co., Leetsdale, Pa.; bids being taken.

100-ton electric overhead crane for power plant at Deepwater, N. J.; inquiry being issued by Stevens & Wood, New York, engineers. This is a revision from a 125-ton crane.

Tuscany Guides New Gray Iron Institute

The executive committee of the Gray Iron institute, formally organized at Philadelphia, May 18, following a preliminary meeting in March, has elected Arthur J. Tuscany, for the past six years secretary-manager of the Ohio State Foundrymen's association, secretary-manager of the institute.

The institute has been incorporated to promote the interests of the gray iron foundry industry. Its work will include the promotion of sound business ethics, the collection and distribution of information on the manufacture of gray iron castings, merchandising, development of new quality, establishment and maintenance of standards and stimulation by co-operative effort of the use and sale of gray iron castings.

Metalworking Machinery Exports Reach Postwar High Level

EXPORTS of metalworking machinery from the United States in 1927 reached the largest volume in seven years, or since the abnormal postwar year 1920, according to S. R. March, industrial machinery division, bureau of commerce. The total value of these shipments was $25,379,000, or 35 per cent more than during 1926 and greater than the volume of 1925, which had marked an abrupt increase over previous years. The marketing of this volume of equipment is of especial interest inasmuch as metalworking machinery is in demand only in those countries which enjoy a certain degree of industrial development. The principal markets for this class of machinery are therefore to be found among the most highly industrialized nations and consequently among the very countries which are the keenest competitors of the United States for the world's metalworking machinery trade.

Table I

Exports of Metalworking Machinery

(In thousands of dollars)

Destination	1910	1913	1919	1921	1922	1923	1924	1925	1926	1927
Canada, Newfoundland, etc.	336	2,328	4,041	1,226	1,641	2,965	1,768	2,340	3,229	4,670
Europe (except Balkans)	4,831	12,263	40,982	8,569	3,914	4,854	7,360	13,762	9,694	14,590
South America	305	572	2,033	1,764	857	863	941	1,628	1,683	1,831
Mexico and Cent. Amer.	126	98	421	871	506	707	495	729	822	502
West Indies	45	129	808	725	284	433	409	408	273	303
Total Latin America	476	799	2,262	3,360	1,647	1,993	1,944	2,766	2,718	2,636
Asia (except Asia Minor)	156	199	8,815	5,137	4,326	2,386	2,561	1,831	1,638	1,977
Australasia	154	463	801	615	483	726	747	931	1,163	1,096
Africa	19	37	545	400	93	158	248	313	372	349
Other countries	4	8	62	327	20	22	52	104	54	61
Total for all countries	5,976	16,097	59,503	19,636	12,124	13,105	14,690	22,037	18,868	25,379
Percentage to—										
Latin America	6.09	5.04	5.6	17.0	13.6	15.2	12.6	12.6	14.4	10.4
Asia	2.6	1.2	15.0	26.0	36.7	18.2	17.7	8.3	8.7	7.8
Canada, Newfoundland	5.6	14.5	7.0	6.2	13.4	23.0	12.1	10.6	17.1	18.4
Europe	80.8	76.2	70.0	44.0	32.3	36.6	50.4	62.4	51.4	57.5
Australasia	2.6	2.8	1.4	3.1	4.0	5.6	5.1	4.2	6.2	4.3
Africa	.3	.2	.9	2.0	.8	1.2	1.7	1.4	2.0	1.4
Other countries	.01	.06	.1	1.7	.2	.2	.4	.6	.2	.2

European Shipments Rise

The outstanding development in the foreign metalworking machinery trade was the gain of $5,000,000, or 50 per cent, in shipments to Europe. It will be remembered that the decline in these exports to Europe in 1926 was responsible for the poorer showing of that year as compared with 1925; this loss has now been more than regained, and Europe in 1927 absorbed twice as much American metalworking machinery as in 1924 and three times the total value of 1923. As a result of these gains, Europe imported 57.5 per cent of the total United States exports of this class of machinery in 1927, or 6.1 per cent more than in 1926. Latin America, on the other hand, imported only 10.4 per cent, or 4 per cent less than in 1926.

Table I affords a basis for the study of United States exports of metalworking machinery by grand divisions over a period of years, including two prewar years for comparison.

The United Kingdom and Canada continued to be the largest individual markets for United States exports of metalworking machinery, imports into each of these countries increasing by more than $1,000,000 over 1926. Germany, whose purchases had fallen off about 67 per cent in 1926 from the record purchases of 1925, imported more than three times as much metalworking machinery in 1927 as in the previous year. Germany's imports in 1927, valued at $3,175,000, compare strikingly with the amounts of $77,120, $209,474, and $545,315 for the years 1922, 1923 and 1924, respectively. Imports into France showed a substantial gain over 1926, but did not quite equal those of 1925.

Sharp Increase Noted

One of the most noteworthy developments in individual markets has occurred in shipments to Soviet Russia in Europe, which amounted to $1,046,000 in 1927, as compared with $538,000 in 1926 and only $930 in 1922. Shipments to both Argentina and Brazil reached record volume and indicate the rapid industrial progress which is taking place in those countries. The Philippine Islands likewise imported the largest volume of metalworking machinery in recent years, exceeding the average for the preceding five years by more than 50 per cent. There were also a few sharp decreases in exports, notably in the cases of Mexico and Chile. Table II compares the principal individual markets for American metalworking machinery over a five-year period. The countries have been arranged in the order of their importance as markets in 1927.

Table II

Principal Metalworking Machinery Markets

Destination	1927	1926	1925	1924	1923
United Kingdom	$5,721,064	$4,654,007	$4,053,267	$3,128,208	$2,451,499
Canada	4,626,481	3,214,770	2,328,409	1,751,692	2,956,589
Germany	3,175,313	1,017,824	2,986,434	545,315	209,474
France	2,198,424	1,581,929	2,429,269	2,058,521	1,091,967
Japan	1,238,320	874,491	1,204,733	1,981,033	1,484,618
Russia in Europe	1,046,465	537,931	887,923	227,972	30,622
Australia	939,858	918,395	840,796	639,749	638,618
Italy	598,786	515,165	1,724,504	304,376	142,263
Brazil	567,543	383,243	299,458	187,082	199,889
Argentina	406,865	252,148	324,803	214,889	204,321
British India	396,905	460,951	361,576	336,914	717,757
Sweden	386,032	329,776	301,862	155,492	111,591
Spain	361,801	228,633	323,135	324,020	280,350
Mexico	335,760	637,964	557,106	352,279	585,728
Netherlands	296,789	109,981	365,103	201,532	123,859
Belgium	291,183	266,408	183,792	192,488	220,680
British South Africa	288,668	323,506	268,791	222,765	139,353
Venezuela	246,418	177,699	127,564	66,502	63,011
Colombia	218,055	139,485	243,818	76,544	66,617
Chile	209,907	418,926	485,160	213,494	187,977
Cuba	201,477	209,386	309,160	345,761	382,640
Switzerland	157,069	107,822	66,482	43,227	28,514
Czechoslovakia	156,425	107,127	256,832	56,453	26,326
New Zealand	155,855	240,733	87,510	106,686	85,962
Peru	133,960	202,189	81,718	119,749	79,011
Netherlands East Indies	123,667	95,918	85,374	48,146	22,553
Philippine Islands	114,302	72,846	53,309	73,637	44,968

Gas-Fired Furnace Built To Treat Castings

(*Concluded from Page* 199)

nace. The pit is used for quenching the castings when removed from the furnace. The furnace here described and the one at its right in Fig. 4, both are operated in such a manner that the quenching pit in front of one furnace is used for quenching the output of the adjacent furnace.

Quenching is accomplished by lifting the entire charge from the hearth of the car with a crane and lowering it immediately into the quenching pit filled with water. Owing to the efficiency and simplicity of the mechanism involved, only a few seconds are required to remove the castings from the furnace and place them into the quenching pit.

The use of gas permits close regulation of heat distribution, insures uniformity of treatment and gives good control of the furnace atmosphere. These features are of course all of prime importance in producing high grade castings. The furnace to the right in Fig. 4 is also of the car-bottom type and gas fired, but of greater dimensions and especially adapted for large castings of heavier cross sections.

To further insure high quality and uniformity in product, it became necessary to install the rotary furnace shown in Fig. 6. This furnace is continuous in operation and is used principally for the lighter type of castings of comparatively thin cross sections. In this unit, it is not only possible to maintain uniform temperature, but it is also possible to secure a gradual rise in temperature during the required soaking period before the castings are brought to the final temperature.

High-pressure gas burners of the inspirator type are used. The first group of burners is on a separate manifold and manually controlled, thereby facilitating a wide range of rates of heat transfer, as it is necessary at times to vary the thermal head depending upon the character of the work. The remaining burners are pyrometrically controlled by equipment which provides for automatic combustion and accurate temperature control and guarantees uniformity of product.

The speed of rotation of the furnace hearth is controlled by a variable speed reducer which enables the furnace to heat treat a comparatively wide range of work. The flexibility of this furnace makes it possible for the operator to set up for each class of work a time and temperature cycle conforming exactly with the metallurgical requirements for any particular type of castings, which have been established by the laboratory staff.

As an illustration of the care with which the furnace operations are supervised, it is interesting to know that periodical analyses of the atmosphere in all furnaces are made at frequent intervals and form part of the records permanently kept, covering the complete history of all castings in the process of manufacture. The records also include complete automatic temperature charts, showing the cycle through which each casting is passed.

The gas compressor equipment consists of three compressors, all connected to a common header, making it possible to operate any one, any combination or all compressors, as the case demands.

Too much stress cannot be laid to the selection of fuel. Much has been written about the advantages of the various fuels and while elaborate computations and curves have been made in an effort to prove the superiority and efficiency of one fuel over the other, there is one thing that might be emphasized at this time, namely, that the B.t.u. efficiency is only a part of the problem and not the entire basis of comparison, for the overall efficiency and quality of finished product are items of greatest importance to the producer. In the development of the heat treating department in the Pettibone Mulliken Co. plant careful study was made of the following items in the selection of fuel and furnaces best suited for the requirements:

1. Quality and uniformity of product.
2. Adaptability to process under consideration.
3. Unit cost of operations.
4. Investment.
5. Depreciation.
6. Maintenance cost.
7. Flexibility of control.
8. Working conditions.

New England Groups To Hold Meeting

An all New England regional meeting of the American Society of Mechanical Engineers will be held at the Statler hotel, Boston, Oct. 1-3. During the first three days of the week there will be three or four simultaneous technical sessions in the morning, the afternoons being devoted to excursions to local plants. New England industries will be the general subject of the meeting which will be held under the auspices of the seven district sections of the society.

Chromium Plate Process Makes Great Strides

(*Concluded from Page* 206)

date concern a laboratory for experimental purposes has been installed. The uses to which chromium plating is put cover a very large field. The firm has already successfully treated such varying articles as motor car parts, bathroom fittings, hearth and door furniture, bedsteads, light fittings, tableware, surgical instruments, condenser tubes, gages, dies, molds, machine parts and printing plates. The pleasing color, resembling platinum or highly polished steel, the high finish, which is untarnishable, easily cleaned with a damp cloth, and resistant to damp and heat, make chromium plating eminently suitable for decorative purposes, both for interior and exterior use.

Its extreme hardness and wearing qualities on the other hand make it of great practical use in building up worn machine parts. Chromium is deposited on the undersized parts, then ground to the required dimensions. When the surface wears again the chromium can be stripped and the part replated, so that its life is practically without limit.

For interior decorative work generally it has been found satisfactory if the base metal is of brass, copper, white metal, bronze, or gun metal, to deposit direct. For outside use an intermediate deposit of nickel is advisable, and on iron and steel used inside or outside, preliminary deposits of copper and nickel are necessary.

Societies To Co-operate During Metal Week

The American Welding society announces that it will hold its fall meeting and welding exhibition in Philadelphia during National Metal Week, Oct. 8-12, coincident with the annual convention and exposition of the American Society for Steel Treating. As was the case last year, the welding show will comprise one part of the steel exposition which is to occupy all of the floor space in the exhibition hall of the Commercial Museum. Technical session of the Welding society will be held at the Bellevue-Stratford hotel in the mornings and at the exhibition hall in the afternoons. The institute of metals division of the American Institute of Mining and Metallurgical Engineers will meet in Philadelphia during the same week.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

WATERBURY, CONN.—Farrell Foundry & Machine Co., 453 Bank street, has awarded the contract for a 2-story plant to Immick Co., State street. (Noted July 12.)

WILMINGTON, DEL.—Superior Equipment Corp., reorganization of the Thompson Spring Co., plans to occupy its new plant at Third street and Greenhill avenue in about three months. Steel contract for the 3-story plant, 40 x 191 feet, has been awarded to W. P. Gormley.

BALTIMORE—Burns Bottling Machine Works, 2329 Kirk avenue, plans enlarging its plant.

BALTIMORE—Small & Rowley, 1508 Terminal building, Cleveland, is preparing plans for the new airplane manufacturing plant to be built for the Glenn L. Martin Co. of Cleveland. It was announced some time ago that the company was moving its operations to Baltimore.

DUNDALK, MD.—Central Foundry Co., W. Dingeldein superintendent, is building a plant addition for the manufacture of cast iron pipe fittings. The plant will be 1-story.

ATTLEBORO, MASS.—Automatic Equipment Co. has made plans to start manufacturing an oil burner and an automatic fire extinguisher, and will locate in this city.

ATTLEBORO, MASS.—W. & R. Jewelry Co. has been incorporated with $50,000 capital to manufacture and deal in jewelry and all metal products, by John R. Davis Melrose, Mass.

BOSTON—Ross Mfg. Co. has been incorporated with $10,000 capital to manufacture devices, appliances, etc., by Max Saxe, 37 Crawford street.

BOSTON—L. S. Avak & Co. Inc. has been incorporated with $25,000 capital to manufacture iron, steel, lead and copper products, by Leon S. Avakian, 551 Mt. Auburn street, Watertown, Mass.

BOSTON—Enterprise Oil Burner Co. of New England has been incorporated with 1000 shares no par value stock to manufacture oil burners, machinery, etc., by Ernest M. Skinner, 76 Grandale terrace, Dorchester, Mass.

BOSTON—Whitenights Stores Inc. has been incorporated with 1000 shares no par value stock to manufacture and deal in washing machines, vacuum cleaners, machinery, etc., by O. W. Hausserman.

EAST BOSTON, MASS.—American Roofing & Sheet Metal Works has been incorporated with 1000 shares no par value stock to engage in general roofing and sheet metal business, by Benjamin D. Levine, 1638 Commonwealth avenue.

HYDE PARK, MASS.—Compressed Steel Shafting Co., 1587 Hyde Park avenue, has awarded the general contract for a 1-story plant, 115 x 145 feet, to Topham & Bates, 1209 Hyde Park avenue. (Noted July 12.)

LYNN, MASS.—L. Christiansen Co. has been incorporated with $100,000 capital to engage in the foundry and machine shop business, by Anna M. Hill, 34 Moulton street.

NORTHAMPTON, MASS.—Northampton Airport Co. has been incorporated with $50,000 capital to manufacture and deal in aircraft of all sorts, etc., by Frank W. Roberts, 60 Massasoit street.

SALEM, MASS.—Tarr-Edgerly Motors Inc. has been incorporated with $50,000 capital to manufacture and deal in motors, machines, etc., by Homer B. Edgerly, 61 Upland avenue, Haverhill, Mass.

SPRINGFIELD, MASS.—Leshure Co. has incorporated with $50,000 capital to manufacture, import and export abrasive wheels and material for their production, by Willard D. Leshure.

SPRINGFIELD, MASS.—Superior Spring Co. has been incorporated with $50,000 capital to manufacture automobile springs, machines, etc., by Henry Kraekemier, 55 Kenneth street, Hartford, Conn.

WALTHAM, MASS.—Comtor Co. has been incorporated with $50,000 capital to manufacture machinery and appliances of all sorts, by Phillip J. Darlington, 84 Corey road, Boston.

BEACHHAVEN, N. J.—Borough council is planning to build a 1-story electric plant. W. H. Boardman, 426 Walnut street, is the architect.

CLIFTON, N. J.—Paterson Machine Co. Inc. has been incorporated with $25,000 capital to manufacture machinery by Malcolm G. Simpson, an attorney, Paterson, N. J.

IRVINGTON, N. J.—American National Moulding Co., 46 Coit street, plans to build a 1-story pipe plant, 55 x 200 feet. Enbro Corp., 111 Academy street, Newark, is architect.

NEWARK, N. J.—Bunstein Body Works Inc. has been incorporated with 2500 shares no par value stock to manufacture auto bodies by Corn & Silverman, Newark, attorneys.

Resale Equipment News

BECKER steel plant, South Charleston, W. Va., constructed during the World war and inactive for more than five years, was sold at public auction to R. M. Venable, for $44,100 by R. Kemp Morton, special commissioner. The Becker steel properties include 16 acres of land and all equipment, machinery and buildings.

* * *

Receiver's sale of the Virginia Shipbuilding Corp., Alexandria, Va., took place July 24. The plant and equipment were offered for sale.

* * *

Brazil Machine & Foundry Co., Brazil, Ind., recently sold to Michael Tauber & Co., Chicago, at receiver's sale, will be offered for sale at public auction in the near future. The Chicago concern does not intend operating the plant.

* * *

Sale of the real estate and machinery of the Stanford Steel Corp., Milford, Conn., took place July 23 on the premises. The property offered for sale included a 1-story building with 12,000 square feet of floor space, and smaller frame buildings. James B. Kelly Co., New Haven, Conn., conducted the sale.

* * *

Samuel T. Freeman & Co., Philadelphia, conducted the liquidation auction of the real estate, buildings and equipment of the Brass & Copper Tube Works Inc., Garwood, N. J., July 26. Property auctioned consisted of a 1-story plant, and lot, 102x300 feet. Machinery and equipment included heavy duty piercing machine, draw benches, rod and tube straightener, furnaces, tanks, alligator shears, air compressor, etc.

Sales Calendar

July 26—Liquidation auction of property of Brass & Copper Tube Works Inc., Garwood, N. J., by Samuel T. Freeman & Co.

Aug. 15.—Auction of plant and equipment of Warren Iron & Steel Co., Warren, O., by Industrial Plants Corp.

NEWARK, N. J.—Charles Stumpfl Inc. has been incorporated with $100,000 capital to manufacture and deal in surgical instruments by Grossman & Grossman, attorneys.

ALBANY, N. Y.—Engineering Service Corp. has been incorporated with 240 shares no par value stock to manufacture and deal in mechanical apparatus, by F. D. Hailes, Troy, attorney.

BROOKLYN, N. Y.—Oppenheim Brass & Bronze Works has been incorporated with 100 shares no par value stock by E. Siegel, 233 Broadway, attorney.

BROOKLYN, N. Y.—Aeon Machine Corp. has been incorporated with 100 shares no par value stock to manufacture tools by Randall, Larson & Hawkins, 149 Broadway, attorney.

BROOKLYN, N. Y.—French Lick Health Appliances has been incorporated with $10,000 capital to manufacture medical appliances by F. S. Johnson, 220 Broadway, attorney.

CORTLAND, N. Y.—Brockway Motor Truck Corp. contemplates building a plant addition.

NEW YORK—Prossen-Meder Corp. has been incorporated with 500 shares no par value stock to manufacture electrical appliances by Wing & Wing, 7 Dey street, attorneys.

NEW YORK—Harlem Rim Works has been incorporated with $12,000 capital to manufacture wheels, by E. Byk, 12 East Forty-first street, attorney.

NEW YORK—International Nickel Co. is understood to be planning erection of a smelter at Cobalt, Ont., to have a capacity of 3000 tons daily. This, it is said, is in addition to a 4500-ton concentrator. Work will be completed on the two plants in about 18 months.

NEW YORK—Wood working machinery and light conveying equipment will be required for a plant to be erected by the Superior Sash & Door Co. at Bates and Barbour streets, Bronx. The proposed mill will be three stories, of steel construction.

SYRACUSE, N. Y.—Smith Trailer Corp. has been incorporated with 500 shares no par value stock to manufacture and deal in agricultural machinery by Hancock, Dorr, Kinsley & Shove, attorneys.

MT. CARMEL, PA.—Ornamental Iron Works has awarded the contract for a fireproof building to Truscon Steel Co., Youngstown, O., and work will start immediately.

PITTSBURGH—H. O. Swoboda Inc., 3400 Forbes street, consulting electrical and mechanical engineer, has been engaged to provide an emergency lighting system for the senior and junior high schools of the Altoona school district, Altoona, Pa.

CHICAGO—Dallas Brass & Copper Co. has awarded the structural steel contract for a plant addition to Gage Structural Steel Co.

CHICAGO—Structural steel contract for a building for the Miehle Printing Press & Mfg. Co. has been awarded to Illinois Steel Co.

CHICAGO—Chicago, Rock Island & Pacific railroad has awarded the contract for structural steel for its car repair shop to American Bridge Co.

CHICAGO—Ketlet-Elliott Erection Co. plans to add a floor to its 2-story plant at California avenue and Thirty-first street. The building is 80 x 90 feet.

CHICAGO—Crown Rheostat & Supply Co., 1908 Maypole avenue, has awarded the contract for a plant addition, 46 x 50 feet, to Chicago Industrial Construction Co.

CHICAGO—Holmes Electrical Mfg. Co., 5116 Ravenswood avenue, has been incorporated with $50,000 capital to manufacture and deal in electrical products, etc., by C. F. Holmes, Emil J. Holmes and F. H. Holmes.

CHICAGO—Chicago department of public works plans an island airport in Lake Michigan near Grant Park. It is understood hangars and also repair shops will be built. Other units will include a pumping station.

CHICAGO—Bru-Shu-Matic Co., 17 East Monroe street, has been incorporated to manufacture and deal in machines and inventions for polishing shoes and other objects, by Benjamin Whem and Charlotte Becker.

CHICAGO—National Sanding Machine Co., 4551 Diversey avenue, has been incorporated with $25,000 capital to manufacture and deal in machinery, etc., by R. L. McVean, L. Hansen and H. Greenfield.

CHICAGO—Mathias Klein & Sons, manufacturers of electricians' and linemen's tools, have completed the purchase of property at Wrightwood avenue and the Chicago, Milwaukee & St. Paul railroad.

CHICAGO—Benjamin Bower & Son Co., 1323 West Carroll avenue, has been incorporated with $25,000 capital to manufacture and deal in metals and metal products, by Gertrude B. Peske, Joseph R. Shapiro and Edward Bower.

CHICAGO—Central Airways Corp., 310 South Michigan avenue, plans to build a 1-story airplane hangar. Contract for construction has been awarded to Love-Sultan Inc., 6625 Delmar, University city.

CHICAGO—United Research Laboratories Inc., 2362 Ogden avenue, have been incorporated with $1250 in preferred shares and 75 shares no par value stock to manufacture and deal in metal novelties and parts by Frank C. McCrum, Max F. Goldberg and William J. Friedman.

CHICAGO—David Lupton's Sons Co., Philadelphia, manufacturer of steel windows, has awarded the contract for the first unit of a new plant to be built here to Clearing Industrial district. The building will be 150 x 500 feet. Additional land for the ultimate expansion to a plant 300 x 1000 feet has been provided.

CHICAGO—Ottawa Sands Corp., recently organized as a division of the Material Service Corp., Conway building, will complete a plant for producing steel molding sand in the Ottawa, Ill., district, Sept. 1. Later the company plans to build another large plant for the production of washed silica sand, sandblast sand and sand for the glass industry.

CICERO, ILL.—Chicago Extruded Metal Co., 1642 South Fifty-fourth street, has awarded the general contract for a 1-story plant 100 x 240 feet, to the Austin Co., 510 North Dearborn street, Chicago.

EAST ST. LOUIS, ILL.—Southern Malleable Iron Co., Twenty-first and Bond street, is building a new foundry to increase the capacity of its plant 25 per cent.

EVANSTON, ILL.—Northwestern university, H. S. Philbrick, 619 Church street, plans to build a power house addition. Elmo C. Lowe, 636 Church street, is the architect.

KEWAUNEE, ILL.—Kewaunee Boiler Co. has awarded the structural steel contract for a boiler house to the Worden-Allen Co.

ROCK FALLS, ILL.—Russell, Burdsall & Ward Bolt & Nut Co. has awarded the contract for a 3-story and basement plant 76 x 226 feet to the Austin Co., 510 North Dearborn street, Chicago.

FT. WAYNE, IND.—Truck Engineering Co. expects to complete its building program soon.

Exposition Will Feature Plant Equipment

The National Metal exposition to be held in Philadelphia Oct. 8-12, under auspices of the American Society for Steel Treating, will compare favorably with the nine previous expositions, according to indications at this early date. The Detroit show last year marked a high water point as far as actual space used, which was in the neighborhood of 93,000 square feet, while the maximum capacity at Commercial museum is approximately 80,000 square feet.

This year's exhibition again will be a well-balanced factory equipment show and will contain all of the complete lines previously featured, covering everything in both the ferrous and nonferrous field; heat-treating equipment; small tools; machinery; forging equipment; inspection, handling and welding equipment. Approximately 10,000 square feet will be devoted to the exhibit of welding supplies and equipment. A portion of Commercial museum has been set aside for this section of the exhibit which is being arranged in co-operation with and under the auspices of the American Welding society. The latter organization will hold its annual fall meeting in Philadelphia during the same week.

In addition, the Institute of Mining and Metallurgical Engineers has announced that it will hold the fall meeting of its institute of metals division simultaneously with the meetings of the American Society for Steel Treating and the American Welding society.

Construction includes a wing, 60 x 100 feet; a warehouse, 25 x 150 feet and a paint shop, 40 x 40 feet, under construction now.

MARION, IND.—Indiana Truck Corp. contemplates large additions to its plant in the next year or so.

DETROIT—Graham-Paige Motor Car Co., 8505 West Warren street, J. B. Graham president, has awarded the contract for a 1-story plant to M. J. Hoffman Construction Co., 7141 West Warren.

JACKSON, MICH.—Jackson Screw Products Co.'s plant was burned in a fire July 4.

MT. CLEMENS. MICH.—Aircraft Specialties Inc. has been organized to build and deal in a new type of dirigible. Clair C. Killen is president.

BEREA, O.—Berea Machine & Tool Works, 320-324 Beech street, is building a plant addition and is also rebuilding its present building.

CANTON, O.—Snappy Radiator & Service Co., S. S. Stone, 736 Cleveland avenue, manager, plans to build a 1-story and basement plant.

CLEVELAND—Triplex Screw Co., A. F. Weber manager, 6112 Central avenue, plans to build a 1-story plant.

CLEVELAND—McKinney Tool & Mfg. Co., E. W. McKinney president, plans to build a 1-story plant, 60 x 60 feet and a 1-story office building, 40 x 40 feet.

CLEVELAND—Winton Engine Works, 2116 West 106th street, contemplates building two buildings. A. Winton is president of the company.

CLEVELAND—Eaton Bumper & Spring Service Co., 6515 Carnegie avenue, has awarded the contract for a 1-story plant, 42 x 90 feet, to Dresser Co.

CLEVELAND—Vlchek Tool Co., 3000 East Eighty-seventh street, F. J. Vlchek president, has awarded the general contract for a 1-story plant addition, 30 x 60 feet, and storage building, 40 x 102 feet, to Hunkin-Conkey Construction Co.

HAMILTON, O.—Herring-Hall-Marvin Safe Co. has work started on a new plant addition.

PIQUA, O.—Uniflow Stoker Co. plans to move to Sidney, O., in the near future and it is expected that the company will take over the plant of the Whipp Machine Co., near the Big Four railroad.

TOLEDO, O.—Hocking Valley railroad plans a new development near here to include yard construction and the laying of new track.

ANTIGO, WIS.—Bids are about to close on the erection of a 2-story vocational school building, 52 x 75 feet. H. E. Smith is secretary of the board of vocational education.

KENOSHA, WIS.—MacWhyte Co., 2906 Fourteenth avenue, is erecting an addition to its wire rope and cable plant to gain capacity for the automobile and aircraft cable department. George S. Whyte is general manager.

KEWASKUM, WIS.—S. N. Casper, village clerk, closes bids July 30 for the construction of a municipal water works system according to plans by Paul L. Clark, consulting engineer, Appleton, Wis. Specifications include 10,600 feet of 6-inch class 150 centrifugal pipe; 8280 feet of 8-inch same class pipe; 77 valves; 38 hydrants; two centrifugal pumps and motors; one 75,000-gallon elevated tank, 142 feet to top.

LA CROSSE, WIS.—P. M. Gelatt, president of the National Gauge & Equipment Co., has gone to New York to confer with directors of the Motometer Co., which purchased the National a year ago, relative to proposed extensions of the La Crosse works.

MILWAUKEE—Kohn Mfg. Co., 1375 Thirtieth street, will build an addition, 60 x 110 feet, to its incinerating unit plant.

MILWAUKEE—A. O. Smith Corp. plans to build a large pipe shop, 280 x 720 feet, to double the output of its present shop. E. W. Burgess is chief construction engineer.

MILWAUKEE—Riebs Co., 85 East Michigan street, will rebuild the portions of its grain elevator and workhouse damaged by fire, making replacement of nearly all machinery and motors. A. J. Riebs is vice president.

MILWAUKEE—Gugler Lithographic Co., 687 Milwaukee street, is preparing to add six stories to its present 2-story manufacturing building, 60 x 128 feet, at 694 Milwaukee street. O. B. Gugler is president and treasurer.

MILWAUKEE—Geuder, Paeschke & Frey Co., 38 Fifteenth street, manufacturer of tin, sheet iron, etc., has awarded the contract for a 1-story manufacturing plant and storage building to Austin Co., Cleveland. (Noted July 19.)

MILWAUKEE—Kearney & Trecker Corp. plans to start work this month on a 2-story plant addition, 72 x 75 feet. General contract for the building has been awarded to Joseph Sausen, 352 Greenfield avenue, Wauwatosa, Wis.

MILWAUKEE—Chain Belt Co., 736 Park street, has awarded the general contract for a manufacturing and storage building, 104 x 150 feet, to Klug & Smith Co., 69 East Wisconsin avenue. The addition wil be completed Sept. 15.

MILWAUKEE—American Metal Products Co., Thirty-fourth avenue and Burnham streets, plans to build a rolling mill as part of an expansion program for the last half of the year. A new addition, 80 x 100 feet has been completed recently.

MILWAUKEE—Auto Trade Salvage Co., division of the Milwaukee Automotive Dealers' association, is enlarging its salvage yard and plant at 4001 Wisconsin avenue, and will install a complete smelting and refining plant for reclaiming metals. The yard was opened July 1, 1927, and has salvaged 2000 cars in its first year.

MILWAUKEE—Van Brunt Mfg. Co., Horicon, Wis., subsidiary of John Deere Plow Co., Moline, Ill., plans to build several manufacturing and storage buildings, including a forge shop, 145 x 179 feet; warehouse, 3-story, 96 x 124 feet; and an addition for elevator shaft, 3-story, 20 x 40 feet. The company manufactures seeding machines and grain drills, principally.

RACINE, WIS.—The board of education has let contracts for shop tools and motors for the manual training departments of the new Washington Park and William Horlick High schools to Western Iron Stores Co., Milwaukee, Pratt & Whitney, and Mohr-Jones Hardware Co., Racine.

RICE LAKE, WIS.—Reckenthaler Bros. have let contracts for the construction of a 2-story garage and service building, 66 x 132 feet.

RICHLAND CENTER, WIS.—Guy C. Luckey, city clerk, closes bids Aug. 7 on furnishing and installing one high pressure condensing steam turbine generator unit with auxiliaries, including one cooling tower, for the municipal light and power plant.

WAUKESHA, WIS.—Spring City Foundry Co., 901 West St. Paul avenue, is building an addition to its shop.

WAUKESHA, WIS.—Waukesha Motor Co. is starting work immediately on a new manufacturing unit, 176 x 308 feet. Plans have been made by the Wisconsin Bridge & Iron Co., Milwaukee, which is also furnishing the steel.

West Central

MARSHALLTOWN, IOWA—Marshalltown Trowell Co. contemplates the construction of a 1-story plant addition.

KANSAS CITY, MO.—Mapes Consolidated Mfg. Co., Tenth and Locust streets, plans to build a 1-story machine shop, 56 x 80 feet.

KANSAS CITY, MO.—Sheffield Steel Corp. has awarded the contract for electrical equipment to be used in its steel mill under construction, to Westinghouse Electric & Mfg. Co.

LEEDS, MO.—Chevrolet Motors Co., General Motors building, Detroit, has awarded the general contract for a 1 and 3-story plant, four units, to S. Patti Construction Co., Lee building, Kansas City, Mo.

SPRINGFIELD, MO.—L. J. Kent Boiler & Sheet Iron Works, 700 East Brower street, plans to build a new plant at Central and Summit streets.

Southern States

HUNTSVILLE, ALA.—Rome Electric Range Co. is building a plant, 56 x 166 feet, and will install about 15 small presses.

NEWPORT, KY.—Brass & Aluminum Products Co. Inc. has been incorporated by Theodore Reynolds and O. Burbank.

LEXINGTON, N. C.—Lexington-Thomasville Gas Co., N. H. Gilbert, president, plans to construct a large gas plant here.

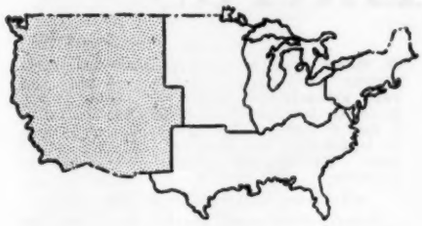
OKLAHOMA CITY, OKLA.—Red Bird Aircraft Corp., 1513 North Fonshill street, E. S. Keller president, has acquired the Wichita truck plant building and will establish an airplane manufacturing plant, moving its plant from Bern, Kans., to this city.

WHITTENBERG, TEX.—Boiler Flue Machine Co. has been incorporated by L. P. Uhrey and J. W. Sanderson.

WICHITA FALLS, TEX.—Eclipse Mfg. Co., manufacturer of a lubricating device for engines, has plans for a branch plant at Wichita Falls.

W. H. Street, Waggoner building, is local manager.

NORFOLK, VA.—C. Billup Son & Co. Inc. has been incorporated with $240,000 capital to manufacture farm implements, by Cecil Billups, Bethesda, Md.



Western States

LOS ANGELES—Ground has been broken for the new Willys-Overland assembly plant being constructed here to take care of production of Whippet and Willys-Knight cars for the Pacific coast territory. (Noted June 1).

SAN FRANCISCO—Simmons Co., 295 Bay street, manufacturer of metal beds, has awarded the contract for a 3-story plant addition to Barrett & Hilp, 918 Harrison street.

SOUTH SAN FRANCISCO, CALIF.—Pacific Coast Steel Co. plans the construction of a bolt and nut plant, 100 x 450 feet, in addition to the machine shop and electric tool heating department announced previously. (Noted July 12.)

PORTLAND, OREG.—Oregon-Washington Railroad & Navigation Co. has awarded the contract for a shop building, apprentice school building and minor repairs to Tranchell & Parelius, Portland.

PORTLAND, OREG.—Steel Plate Construction Co., 514 North Twenty-ninth street, has completed construction of a plant addition, 40 x 50 feet. Additional machinery will be installed at an early date. W. L. McCulloch is president and manager.

Canada

PORT ALBERNI, B. C.—City council plans addition to power plant here. New equipment will be purchased.

TRAIL, B. C.—It is reported that another big hydroelectric power development will be undertaken on the Pen Oreille river here by the West Kootenay Power & Light Co. The proposed plant will produce 80,000 horsepower to be used in smelting operations here.

WINNIPEG, MAN.—Canadian Household Machines Ltd. has been incorporated to manufacture and deal in household, electric and mechanical appliances with $25,000 capital and 2500 shares no par value stock by Lawrence Palk, William E. Blodgett, and Maurice G. Gilman.

SALISBURY, N. B.—New Brunswick electric power commission, St. John, N. B., announced that it is only waiting for approval of provincial government to proceed with erection of an auxiliary power plant at or near here. Hon. E. A. Reilley, Moncton, N. B., is chairman of the commission.

BROCKVILLE, ONT.—A. G. Adams Ltd. has been incorporated to manufacture and deal in piston rings, automobile and electrical equipment and supplies with $200,000 capital by Allan G. Adams, Robert J. Driver, and Walter Lawless.

DENFIELD, ONT. — Denfield Co-operative Garage & Electric Co. Ltd. has been incorporated to manufacture and deal in automobiles, motor cars, motor-cycles and auto trucks with $15,000 capital by Thomas Rosser, Murray H. McInroy, and Freeman G. Hughes.

GUELPH, ONT.—National Standard Co. of Canada Ltd., 133 Woolwich street, manufacturer of wire braid, etc., will start work at once on an addition to its plant to be 1 story, 62 x 76 feet, steel and brick. Equipment will be purchased. M. Balconi, 23 Morris street, has been awarded contract for construction; the Hamilton Bridge Co., Bay street, north, Hamilton, Ont., has the steel contract. Architects, Mahoney & Austin, 20½ Douglas street, Guelph.

HAMILTON, ONT.—Holland Construction Co. Ltd. has been incorporated, with $40,000 capital by Michael J. Holland, John A. Christilaw, and Frank A. Carty.

SUDBURY, ONT.—Smith & Travers, Walnut street, will build a 1-story machine shop, garage and office building, 30 x 90 feet, brick construction. Gustiana & Zettler, Box 696, have been awarded general contract.

SUDBURY, ONT.—Gustiana & Zettler, Box 696, have contract for construction of power house and heating plant on Elgin street, for the St. Joseph hospital. Building to be 45 x 55 feet, brick construction. Architect, P. J. O'Gorman, Mackey Block.

TORONTO, ONT.—McNamara Bros. Ltd. has been incorporated to carry on a business of general contractor and engineer, with $40,000 capital by George M. Huycke, Norman E. Strickland, and Robert G. Ferguson.

TORONTO, ONT.—Scissors Cut Power Lawnmower Co. Ltd. has been incorporated to manufacture and deal in implements, tools, machinery, engines, etc., with $300,000 capital and 9000 shares no par value stock by Harold E. Boston, Robert G. Ferguson, and Norman E. Strickland.

WINDSOR, ONT.—Plymouth Motor Corp. of Canada, Ltd. has been incorporated to manufacture and deal in automobiles, motors, engines, etc., with $10,000 capital by John D. Mansfield, Joseph E. Fields, and William L. Mitchell.

MONTREAL, QUE.—Hydro Turbine Co. Ltd. has been incorporated to manufacture and deal in machinery, supplies, apparatus and equipment with $76,000 capital by Francis G. Bush, Herbert W. Jackson, and Alexander G. Yeoman.

ISLAND FALLS, SASK.—Churchill River Power Co. Ltd., 405 McCallum-Hill building, Regina, Sask., allied with the Whitney interests in the development of the Flin Flon properties in northern Saskatchewan and Manitoba, will install an initial power development of 39,000 horsepower on the Churchill river here, according to an official announcement. The plant will supply power to the Flin Flon.

REGINA, SASK.—General Motors of Canada Ltd., Oshawa, Ont., is having plans prepared by Hutton & Souter, 6 James street, Hamilton, Ont., for construction of a power house and several other buildings here in connection with the proposed plant. Tenders for the additional buildings will be called about Aug. 1.

New Trade Publications

CRAWLER PARTS—Nugent Steel Casting Co., Chicago, has issued bulletin No. 107 explaining the need for crawler parts that will wear well. Illustrations show various crawler parts.

SPRAY HEADER—Semet-Slovay Engineering Corp., New York, has issued a two-color sheet explaining its spray header. What the spray header can do and a photograph and detail drawing of it are included in the sheet.

STORAGE CUPBOARDS—Van Dorn Iron Works, Cleveland, in a folder issued recently, displays several of its various types of storage cupboards. The folder, well illustrated, explains in detail the size of each cupboard.

FILING CABINETS—Van Dorn Iron Works, Cleveland, has an attractive color folder presenting different styles and kinds of filing cases with considerable explantion about each cabinet. Desk card cases, desk height files, cabinet assemblies, transfer cases, etc., are included among the illustrations.

WIRE ROPE SLINGS—John A. Roebling Son's Co., Trenton, N. J., has published an 85-page catalogue, the 1928 edition of its 1925 Roebling's Wire Rope Slings. Illustrations show some of the recent developments of wire rope slings as a substitute for other lifting apparatus. Chart shows the various safe loads for the slings, under different conditions. The catalog has numerous pictures showing the wire rope slings in actual use.

OXYACETYLENE EQUIPMENT—Oxweld Acetylene Co., New York, has issued a 56-page catalogue, describing in detail products manufactured by this company, including welding and cutting equipment of all sorts, and generators for the production of acetylene. Items described are the new type C-14 cutting blowpipe, the carbic low pressure acetylene generators and the carbic floodlights. The publication is profusely illustrated.

ALUMINUM FURNITURE—United States Aluminum Co., Buffalo, has published an impressive catalog presenting its line of aluminum furniture. The book has been compiled with the various styles of chairs pictured in colors. Specifications appear opposite the pictures, giving average weight, height from floor, width and depth of seat, etc. Two pages of descriptive matter of the specifications covering the construction of aluminum furniture appear at the front of the catalog. Black and white photographs at the back of the book illustrate some of the installations.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3½ to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of seven extra 5 per cents now being given on 21,000 pounds or more.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of two 10's and one 2½ now being given on 12,000 pounds or more.)

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	45 off

SEAMLESS HOT ROLLED

2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	52 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra	.10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra	.20c

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN
SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price*, and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.

LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

European Iron and Steel Statistics

Gross Tons

Pig Iron Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	729,000	405,000	192,000	184,800	1,279,200
1913	855,000	427,200	203,800	209,000	1,374,400
1921	218,000	280,300	71,800	79,600	643,200
1922	408,500	428,900	132,300	138,200	770,500
1923	620,000	445,600	179,100	115,400	404,700
1924	609,000	631,100	230,300	177,000	640,500
1925	521,800	696,800	208,500	192,300	834,500
1926	203,500	770,500	278,800	206,100	791,000
1927					
January	434,600	792,400	311,500	224,100	1,044,600
February	571,100	705,100	288,000	204,500	953,600
March	671,800	788,500	309,400	226,200	1,068,900
April	680,000	761,800	305,100	221,000	1,035,400
May	720,100	781,800	314,000	233,900	1,112,100
June	651,300	735,000	297,300	220,300	1,050,900
July	645,800	757,100	314,700	221,700	1,091,600
August	596,100	761,400	311,700	234,500	1,098,100
September	591,500	749,500	304,000	225,500	1,087,400
October	596,300	782,600	317,200	226,600	1,121,600
November	575,900	750,100	308,200	217,800	1,101,900
December	559,100	783,600	311,900	224,600	1,131,700
1928					
January	560,500	796,400	309,700	226,000	1,162,100
February	550,800	772,100	297,300	216,700	1,104,800
March	592,600	845,000	321,400	236,500	1,152,200
April	563,100	821,100	313,220	223,400	1,029,100
May	591,500	871,000	328,810	233,806	1,027,700
June	563,700	.....	.....	.....	.....

Ingots and Castings Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912	566,000	363,000	206,000	79,400	1,339,600
1913	638,600	384,500	202,300	109,000	1,445,700
1921	308,600	254,500	62,800	61,900	819,700
1922	490,100	372,000	128,400	114,300	960,500
1923	706,800	419,100	186,200	98,300	517,000
1924	685,100	566,000	234,700	154,300	806,500
1925	615,500	608,300	197,700	170,800	1,000,000
1926	296,700	687,900	276,800	184,100	1,012,500
1927					
January	730,700	662,900	315,700	192,300	1,288,500
February	826,800	618,200	292,200	181,300	1,214,300
March	949,600	692,900	309,700	199,800	1,393,600
April	850,100	669,900	296,400	202,800	1,269,100
May	884,600	700,800	316,100	206,900	1,356,200
June	747,300	661,400	295,100	200,000	1,307,200
July	687,100	666,300	309,200	199,800	1,341,100
August	643,100	683,200	320,600	212,500	1,409,700
September	777,000	682,400	285,400	209,600	1,353,600
October	699,000	711,600	307,200	211,800	1,392,300
November	698,700	671,300	305,200	204,200	1,380,000
December	604,900	723,500	305,900	210,500	1,351,100
1928					
January	626,200	738,300	310,700	209,600	1,446,500
February	764,400	726,500	305,600	201,800	1,301,300
March	793,300	791,400	321,600	216,900	1,398,200
April	644,100	726,500	300,300	199,400	1,143,300
May	752,700	794,000	325,160	214,756	.....
June	709,500	.....	.....	.....	.....

*German pre-war boundaries for 1912 and 1913; from 1919 the figures do not include the Saar district returns.

Imports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	166,400	16,400	87,000	27,300
Average monthly 1913	185,900	14,100	72,900	25,000
Average monthly 1921	136,700	41,300	43,300	54,000
Average monthly 1922	73,500	63,300	47,700	152,300
Average monthly 1923	110,200	58,500	43,700	145,000
Average monthly 1924	202,400	57,100	46,800	160,000
Average monthly 1925	226,700	14,100	44,500	98,400
Average monthly 1926	311,700	14,200	50,200	86,500
1927				
January	555,500	7,900	45,800	129,500
February	443,400	10,100	36,800	143,400
March	478,100	10,500	54,000	129,800
April	404,700	12,000	47,300	200,000
May	355,900	15,100	47,500	186,400
June	332,600	14,100	56,300	186,300
July	336,300	12,000	52,700	189,000
August	286,300	9,900	63,400	211,300
September	312,000	6,900	50,000	210,900
October	336,000	8,100	68,000	232,800
November	284,800	8,200	57,800	223,900
December	280,500	11,400	59,800	190,100
1928				
January	283,900	6,000	65,000	200,800
February	286,900	10,100	72,000	179,600
March	271,500	18,000	70,200	187,700
April	252,700	13,212	61,700	189,100
May	236,900	.....	.....	186,450
June	210,405	.....	.....	.....

*Luxemburg is included with Germany in 1912 and 1913.

Exports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	400,600	41,500	124,500	482,400
Average monthly 1913	414,100	51,600	129,200	517,300
Average monthly 1921	141,400	133,800	75,600	160,000
Average monthly 1922	283,400	161,400	175,900	209,700
Average monthly 1923	360,000	181,900	207,900	110,000
Average monthly 1924	321,100	231,100	282,200	130,000
Average monthly 1925	310,900	321,700	262,800	267,600
Average monthly 1926	249,000	343,800	308,900	402,000
1927				
January	219,400	463,300	345,900	478,400
February	251,700	480,600	364,500	352,900
March	353,000	472,700	415,000	374,100
April	334,500	519,100	383,800	344,300
May	422,400	461,900	364,800	344,300
June	366,100	432,900	351,300	307,600
July	389,600	454,600	375,700	340,600
August	342,400	465,800	426,700	333,200
September	384,900	453,600	357,100	346,800
October	384,800	508,400	372,900	340,700
November	399,100	449,300	392,900	326,800
December	381,800	440,300	456,300	340,600
1928				
January	332,200	408,100	274,600	363,026
February	317,000	452,900	395,500	390,776
March	409,300	443,500	453,100	334,798
April	344,300	366,202	323,600	412,810
May	359,000	.....	.....	398,470
June	365,890	.....	.....	.....

†Luxemburg included with Belgium from 1922 onward.

American Iron and Steel Exports, Imports

Gross Tons

	Imports	Exports
1928		
January	58,635	205,766
February	47,628	185,915
March	74,128	221,935
April	72,329	215,184
May	72,106	267,890
1927		
January	63,404	215,235
February	49,451	166,128
March	61,872	171,094
April	60,374	192,339
May	79,814	202,708
June	69,017	184,364
July	61,112	190,502
August	68,386	175,636
September	58,464	166,352
October	52,503	170,255
November	61,882	177,928
December	64,188	168,428
Total	750,467	2,180,969
1926		
January	79,067	174,585
February	100,213	157,187
March	93,107	169,438
April	107,636	194,449
May	108,731	173,418
June	124,215	159,506
July	82,411	194,717
August	91,578	171,588
September	85,484	182,071
October	81,830	172,070
November	81,259	219,830
December	75,559	198,189
Total	1,111,090	2,167,048
1925		
January	77,065	141,714
February	92,380	102,302
March	92,110	155,386
April	71,249	155,426
May	68,117	150,612
June	83,330	136,847
July	64,642	138,670
August	68,489	188,963
September	68,445	136,754
October	80,163	141,817
November	79,771	171,134
December	98,400	142,209
Total	943,240	1,762,571

Yearly Totals		
1924	556,281	1,805,064
1923	734,734	2,009,141
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,301	6,465,053
1916	328,965	6,110,732
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635
1912	225,072	2,947,596
1911	262,457	2,187,725
1910	510,730	1,537,943
1909	363,984	1,243,583
1908	205,845	964,242
1907	662,358	1,301,981
1906	577,809	1,325,740
1905	416,000	1,011,255
1904	266,398	1,167,674
1903	1,178,797	326,590
1902	1,212,484	1,103,664
1901	221,297	700,852
1900	209,955	1,154,284